

Figure 1

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
Mask 5: VTP Adjust	Oxide Etch
	Oxidation (Gate Oxide)
	Photo
	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
Mask 6: Polysilicon Gate Patterning	Polysilicon Doping
	Photo
	Polysilicon Etch
	Oxidation and Diffusion
	Polysilicon Oxidation
Mask 10: N+ Implant	Photo
	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
	SG/PSG/SOG (Oxide) Deposition
Mask 11: P+ Implant	Diffusion
	Photo
	Contact Etch
	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
Mask 12: Contacts	Photo
	Metal Etch
	Dielectric and SOG (Oxide) Deposition
	Photo
	Vias Etch
Mask 13: Metal 1	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Oxide / Nitride Deposition
Mask 14: Vias	Photo
	Vias Etch
	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
Mask 15: Metal 2	Metal Etch
	Oxide / Nitride Deposition
	Photo
	Oxide Etch
Mask 16: Passivation	

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Figure 2

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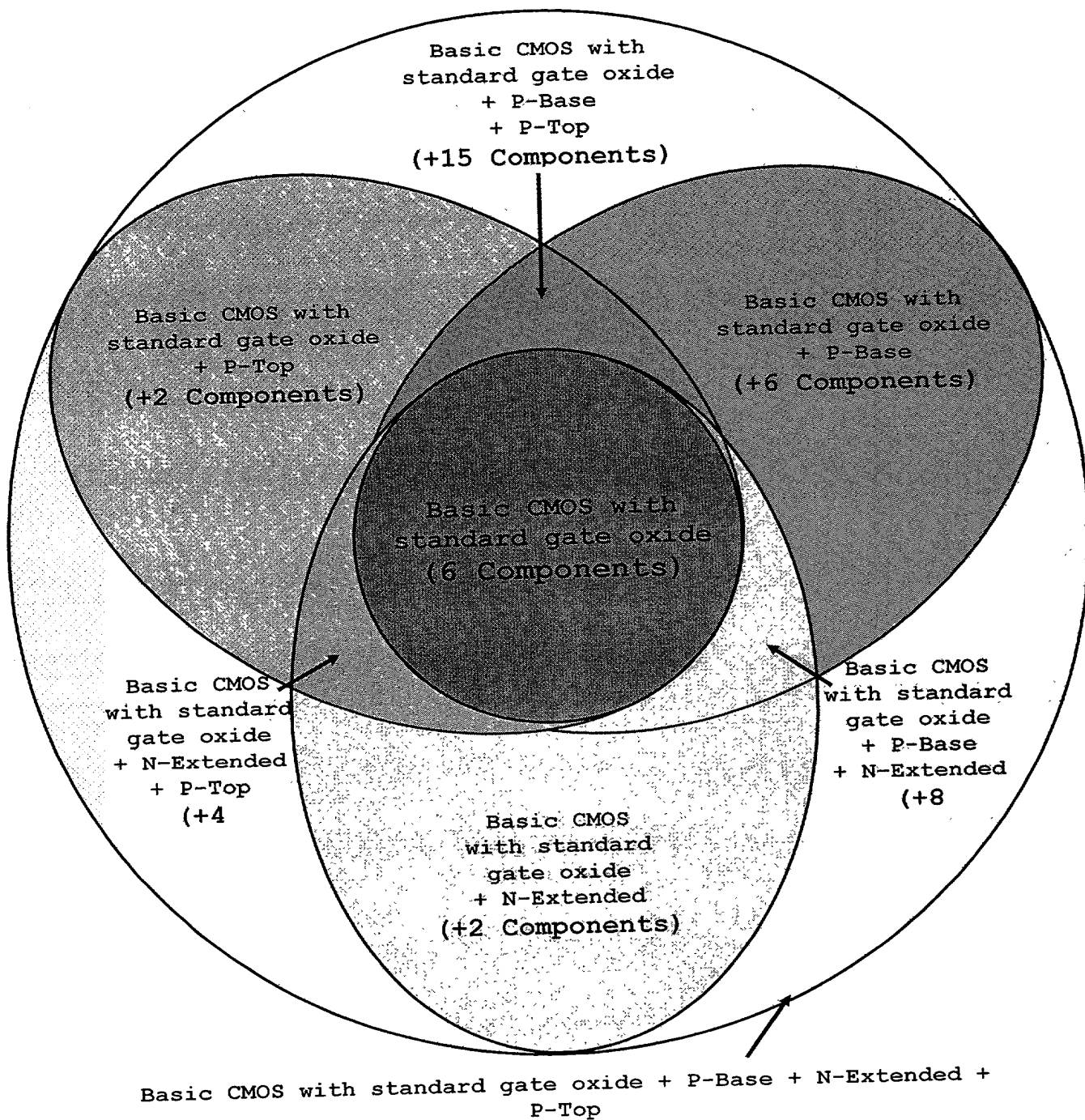


Figure 3

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
Mask 5: Thin Gate oxide & VTP Adjust	Oxide Etch
	Oxidation (Pre-Gate Oxide)
	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
Mask 6: Polysilicon Gate Patterning	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
	Polysilicon Etch
Mask 8: N-Extended	Photo
Mask 10: N+ Implant	N-Type Implant (N-Extended)
	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
	N-Type Implant (N+)
Mask 11: P+ Implant	Photo
	P-Type Implant (P+)
	SG/PSG/SOG (Oxide) Deposition
Mask 12: Contacts	Diffusion
	Photo
	Contact Etch
	Ti/TiN Deposition with Oxidation
Mask 13: Metal 1	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Dielectric and SOG (Oxide) Deposition
Mask 14: Vias	Photo
	Vias Etch
	Ti/TiN Deposition with Oxidation
Mask 15: Metal 2	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Oxide / Nitride Deposition
Mask 16: Passivation	Photo
	Oxide Etch

Figure 4

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
	Oxidation (Pre-Gate Oxide)
Mask 5: Thin Gate oxide & VTP Adjust	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
	P-Type Implant (VTP Adjust)
Mask 6: Polysilicon Gate Patterning	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
	Polysilicon Etch
Mask 9: P-Top	Photo
Mask 10: N+ Implant	P-Type Implant (P-Top)
	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
Mask 11: P+ Implant	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
Mask 12: Contacts	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
Mask 13: Metal 1	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Dielectric and SOG (Oxide) Deposition
Mask 14: Vias	Photo
	Vias Etch
Mask 15: Metal 2	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 16: Passivation	Oxide / Nitride Deposition
	Photo
	Oxide Etch

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Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon ,
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
Mask 2: Active Area	Diffusion
	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
Mask 3: P-Field	Photo
	Nitride Etch
	Photo
	P-Type Implant (P-Field)
Mask 5: Thin Gate oxide & VTP Adjust	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
Mask 6: Polysilicon Gate Patterning	Oxidation (Pre-Gate Oxide)
	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
Mask 8: N-Extended	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
Mask 9: P-Top	Polysilicon Etch
	Photo
	N-Type Implant (N-Extended)
	Photo
Mask 10: N+ Implant	P-Type Implant (P-Top)
	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
Mask 11: P+ Implant	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
	SG/PSG/SOG (Oxide) Deposition
Mask 12: Contacts	Diffusion
	Photo
	Contact Etch
	Ti/TiN Deposition with Oxidation
Mask 13: Metal 1	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Dielectric and SOG (Oxide) Deposition
Mask 14: Vias	Photo
	Vias Etch
	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
Mask 15: Metal 2	Photo
	Metal Etch
	Oxide / Nitride Deposition
	Photo
Mask 16: Passivation	Oxide Etch

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Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
Mask 2: Active Area	Diffusion
	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
Mask 3: P-Field	Photo
	Nitride Etch
	Photo
	P-Type Implant (P-Field)
Mask 5: Thin Gate oxide & VTP Adjust	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
Mask 6: Polysilicon Gate Patterning	Oxidation (Pre-Gate Oxide)
	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
Mask 7: P-Base	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
Mask 10: N+ Implant	Polysilicon Etch
	Photo
	P-Type Implant (P-Base)
	Oxidation and Diffusion
Mask 11: P+ Implant	Polysilicon Oxidation
	Photo
	N-Type Implant (N+)
	Photo
Mask 12: Contacts	P-Type Implant (P+)
	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
Mask 13: Metal 1	Contact Etch
	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
Mask 14: Vias	Metal Etch
	Dielectric and SOG (Oxide) Deposition
	Photo
	Vias Etch
Mask 15: Metal 2	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 16: Passivation	Oxide / Nitride Deposition
	Photo

Figure 7

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
Mask 5: Thin Gate oxide & VTP Adjust	Oxide Etch
	Oxidation (Pre-Gate Oxide)
	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
Mask 6: Polysilicon Gate Patterning	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
	Polysilicon Etch
Mask 7: P-Base	Photo
Mask 8: N-Extended	P-Type Implant (P-Base)
	Photo
	N-Type Implant (N-Extended)
Mask 10: N+ Implant	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
Mask 11: P+ Implant	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
Mask 12: Contacts	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
Mask 13: Metal 1	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 14: Vias	Dielectric and SOG (Oxide) Deposition
	Photo
	Vias Etch
Mask 15: Metal 2	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 16: Passivation	Oxide / Nitride Deposition
	Photo
	Oxide Etch

Figure 7





Figure 9

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
Mask 5: Thin Gate oxide & VTP Adjust	Oxide Etch
	Oxidation (Pre-Gate Oxide)
	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
Mask 6: Polysilicon Gate Patterning	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
	Polysilicon Etch
Mask 7: P-Base	Photo
Mask 8: N-Extended	P-Type Implant (P-Base)
	Photo
Mask 9: P-Top	N-Type Implant (N-Extended)
	Photo
Mask 10: N+ Implant	P-Type Implant (P-Top)
	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
	N-Type Implant (N+)
Mask 11: P+ Implant	Photo
	P-Type Implant (P+)
Mask 12: Contacts	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
	Ti/TiN Deposition with Oxidation
Mask 13: Metal 1	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Dielectric and SOG (Oxide) Deposition
	Photo
Mask 14: Vias	Vias Etch
	Ti/TiN Deposition with Oxidation
Mask 15: Metal 2	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Oxide / Nitride Deposition
	Photo
Mask 16: Passivation	Oxide Etch

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Figure 10

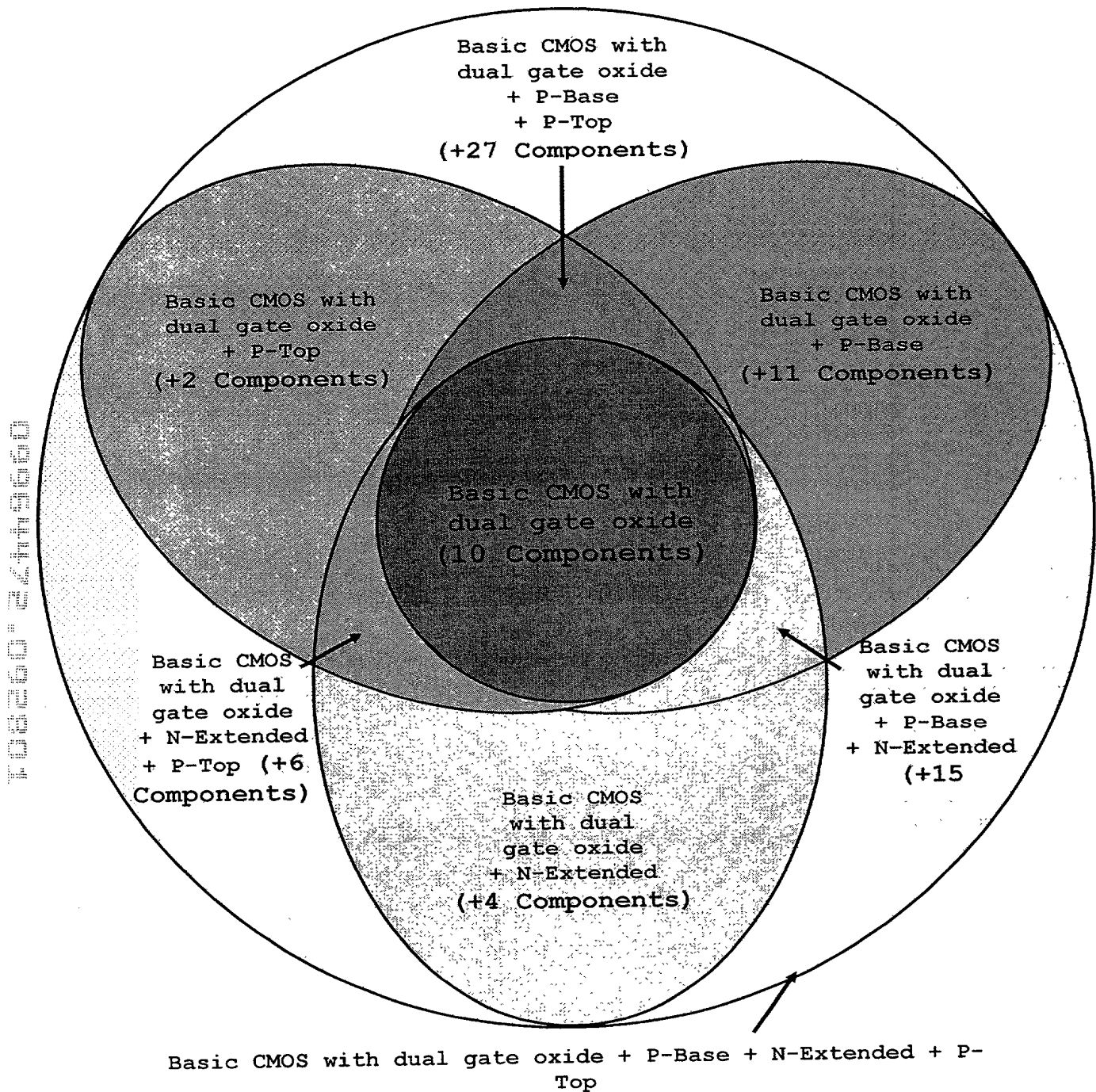


Figure 11

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
Mask 2: Active Area	Diffusion
	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
Mask 3: P-Field	Photo
	Nitride Etch
	Photo
	P-Type Implant (P-Field)
Mask 4: High-voltage Gate Oxide	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
Mask 5: Thin Gate oxide & VTP Adjust	Oxidation (Pre-Gate Oxide)
	Oxide Etch
	Oxidation (High-voltage Gate Oxide)
	Photo
Mask 6: Polysilicon Gate Patterning	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
	P-Type Implant (VTP Adjust)
Mask 10: N+ Implant	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
	Polysilicon Etch
Mask 11: P+ Implant	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
	N-Type Implant (N+)
Mask 12: Contacts	Photo
	P-Type Implant (P+)
	SG/PSG/SOG (Oxide) Deposition
	Diffusion
Mask 13: Metal 1	Photo
	Contact Etch
	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
Mask 14: Vias	Photo
	Metal Etch
	Dielectric and SOG (Oxide) Deposition
	Photo
Mask 15: Metal 2	Vias Etch
	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
Mask 16: Passivation	Metal Etch
	Oxide / Nitride Deposition
	Photo
	Oxide Etch

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Figure 13

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
	Oxidation (Pre-Gate Oxide)
Mask 4: High-voltage Gate Oxide	Oxide Etch
	Oxidation (High-voltage Gate Oxide)
	Photo
Mask 5: Thin Gate oxide & VTP Adjust	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
Mask 6: Polysilicon Gate Patterning	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
	Polysilicon Etch
Mask 8: N-Extended	Photo
Mask 10: N+ Implant	N-Type Implant (N-Extended)
	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
Mask 11: P+ Implant	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
Mask 12: Contacts	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
Mask 13: Metal 1	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 14: Vias	Dielectric and SOG (Oxide) Deposition
	Photo
	Vias Etch
Mask 15: Metal 2	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 16: Passivation	Oxide / Nitride Deposition
	Photo
	Oxide Etch

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Figure 14

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
Mask 4: High-voltage Gate Oxide	Oxide Etch
	Oxidation (High-voltage Gate Oxide)
	Photo
	Oxide Etch
	Oxidation (Thin Gate Oxide)
Mask 5: Thin Gate oxide & VTP Adjust	Photo
	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
Mask 6: Polysilicon Gate Patterning	Polysilicon Etch
	Photo
	N-Type Implant (N-Extended)
	Photo
	P-Type Implant (P-Top)
Mask 8: N-Extended	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
	N-Type Implant (N+)
	Photo
Mask 9: P-Top	P-Type Implant (P+)
	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
Mask 10: N+ Implant	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Dielectric and SOG (Oxide) Deposition
Mask 11: P+ Implant	Photo
	Vias Etch
	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
Mask 12: Contacts	Metal Etch
	Oxide / Nitride Deposition
	Photo
	Oxide Etch
Mask 13: Metal 1	
Mask 14: Vias	
Mask 15: Metal 2	
Mask 16: Passivation	

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Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
Mask 2: Active Area	Diffusion
	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
Mask 3: P-Field	Photo
	Nitride Etch
	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
Mask 4: High-voltage Gate Oxide	Oxidation (Pre-Gate Oxide)
	Oxide Etch
Mask 5: Thin Gate oxide & VTP Adjust	Oxidation (High-voltage Gate Oxide)
	Photo
	Oxide Etch
	Oxidation (Thin Gate Oxide)
Mask 6: Polysilicon Gate Patterning	Photo
	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
Mask 7: P-Base	Polysilicon Etch
	Photo
Mask 10: N+ Implant	P-Type Implant (P-Base)
	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
Mask 11: P+ Implant	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
Mask 12: Contacts	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
Mask 13: Metal 1	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 14: Vias	Dielectric and SOG (Oxide) Deposition
	Photo
	Vias Etch
Mask 15: Metal 2	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 16: Passivation	Oxide / Nitride Deposition
	Photo
	Oxide Etch





Figure 17

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
	Diffusion
Mask 2: Active Area	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
	Photo
	Nitride Etch
Mask 3: P-Field	Photo
	P-Type Implant (P-Field)
	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
	Oxidation (Pre-Gate Oxide)
Mask 4: High-voltage Gate Oxide	Oxide Etch
	Oxidation (High-voltage Gate Oxide)
Mask 5: Thin Gate oxide & VTP Adjust	Photo
	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
Mask 6: Polysilicon Gate Patterning	P-Type Implant (VTP Adjust)
	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
Mask 7: P-Base	Polysilicon Etch
	Photo
Mask 9: P-Top	P-Type Implant (P-Base)
	Photo
Mask 10: N+ Implant	P-Type Implant (P-Top)
	Oxidation and Diffusion
	Polysilicon Oxidation
	Photo
Mask 11: P+ Implant	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
Mask 12: Contacts	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
Mask 13: Metal 1	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 14: Vias	Dielectric and SOG (Oxide) Deposition
	Photo
	Vias Etch
Mask 15: Metal 2	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 16: Passivation	Oxide / Nitride Deposition
	Photo
	Oxide Etch

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Figure 18

Name of Photolithographic Mask	Process Steps
Mask 1: N-Well	Starting Material : P- Bulk Silicon
	Oxidation (Initial oxide)
	Photo
	N-Type Implant (N-Well)
Mask 2: Active Area	Diffusion
	Oxide Etch
	Oxidation (Subnitox)
	Silicon Nitride Deposition (CVD)
Mask 3: P-Field	Photo
	Nitride Etch
	Photo
	P-Type Implant (P-Field)
Mask 4: High-voltage Gate Oxide	Blanket N-Type Implant (N-Field)
	Oxidation (Field Oxide)
	Nitride Etch
	Oxide Etch
Mask 5: Thin Gate oxide & VTP Adjust	Oxidation (Pre-Gate Oxide)
	Oxide Etch
	Oxidation (High-voltage Gate Oxide)
	Photo
Mask 6: Polysilicon Gate Patterning	Oxide Etch
	Oxidation (Thin Gate Oxide)
	Photo
	P-Type Implant (VTP Adjust)
Mask 7: P-Base	Polysilicon Gate Deposition (CVD)
	Polysilicon Doping
	Photo
	Polysilicon Etch
Mask 8: N-Extended	Photo
	P-Type Implant (P-Base)
	Photo
	N-Type Implant (N-Extended)
Mask 9: P-Top	Photo
	P-Type Implant (P-Top)
	Oxidation and Diffusion
	Polysilicon Oxidation
Mask 10: N+ Implant	Photo
	N-Type Implant (N+)
	Photo
	P-Type Implant (P+)
Mask 11: P+ Implant	SG/PSG/SOG (Oxide) Deposition
	Diffusion
	Photo
	Contact Etch
Mask 12: Contacts	Ti/TiN Deposition with Oxidation
	Aluminium Alloy Deposition
	Photo
	Metal Etch
Mask 13: Metal 1	Dielectric and SOG (Oxide) Deposition
	Photo
	Vias Etch
	Ti/TiN Deposition with Oxidation
Mask 14: Vias	Aluminium Alloy Deposition
	Photo
	Metal Etch
	Oxide / Nitride Deposition
Mask 15: Metal 2	Photo
	Oxide Etch
	Photo
	Oxide Etch
Mask 16: Passivation	Photo
	Oxide Etch
	Photo
	Oxide Etch

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Figure 19a

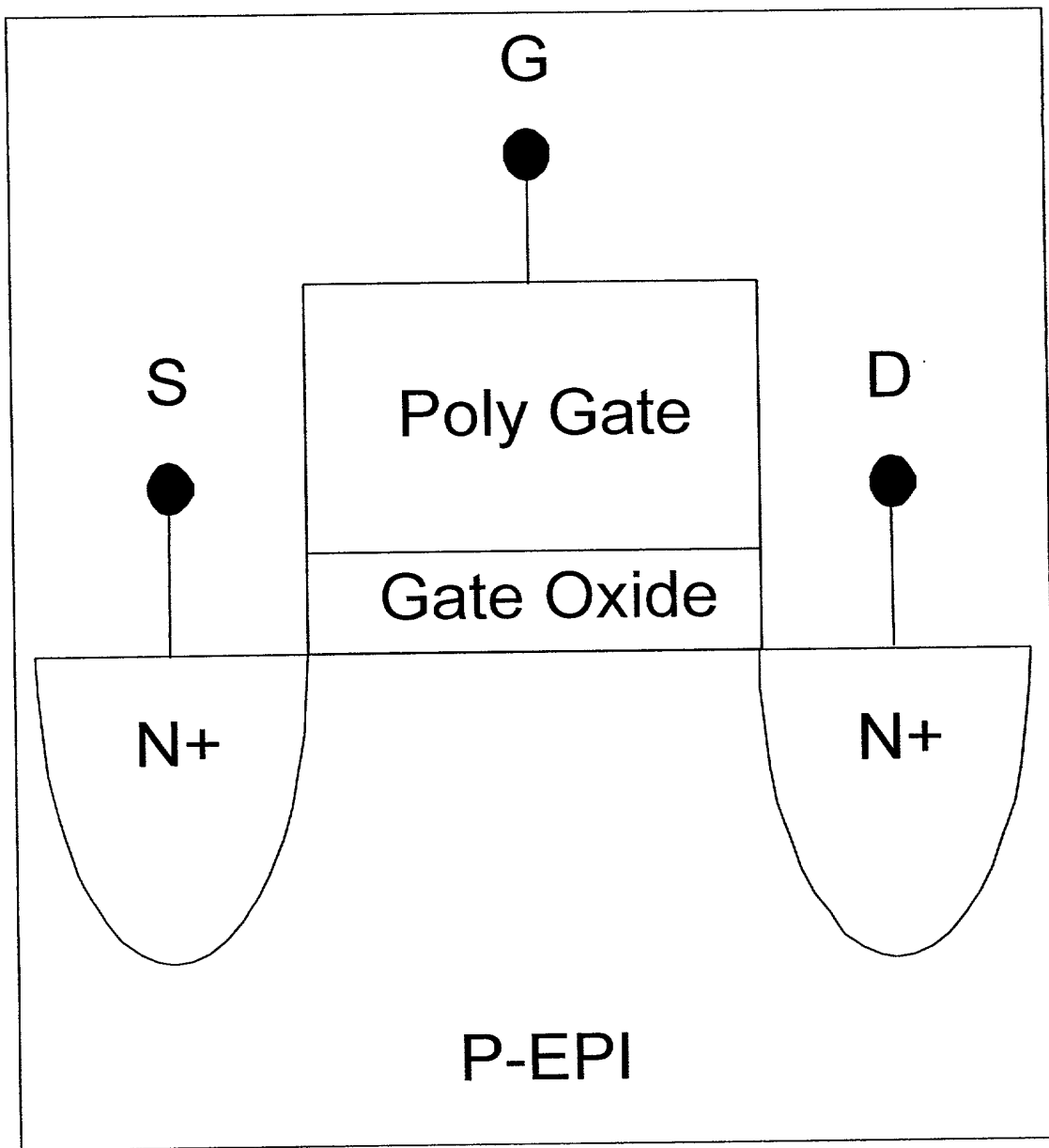


Figure 19b

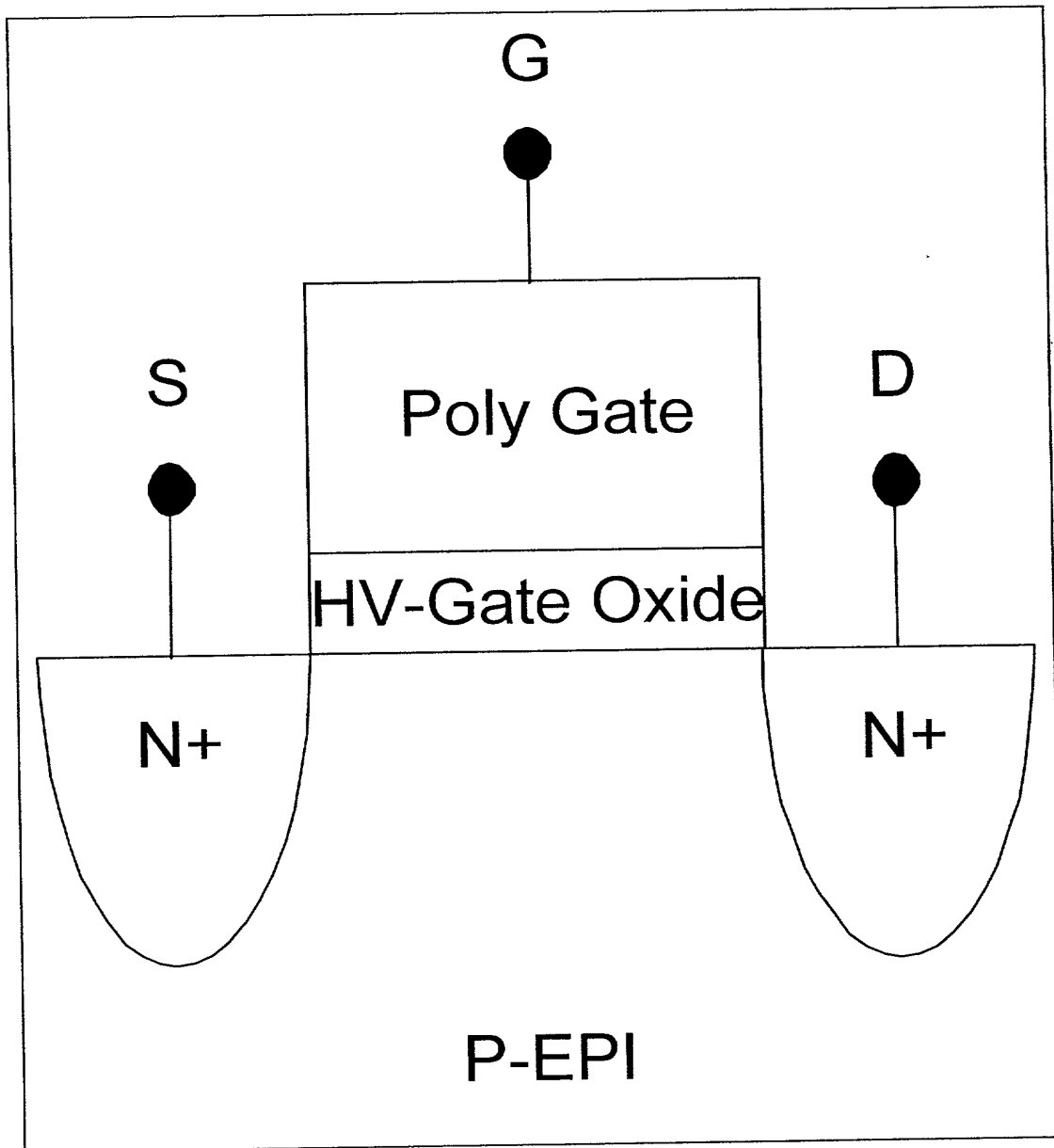
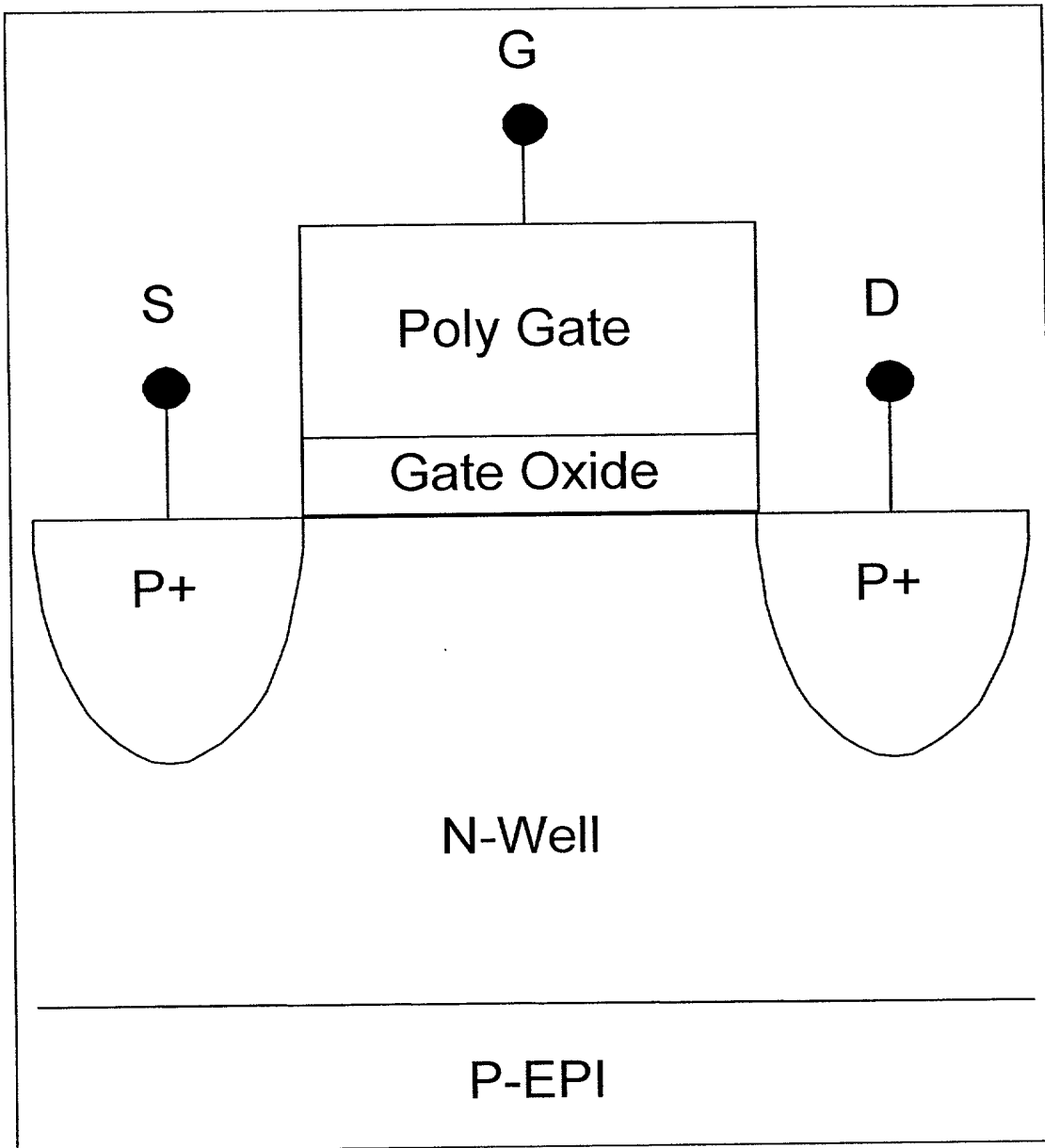


Figure 20a



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Figure 20b

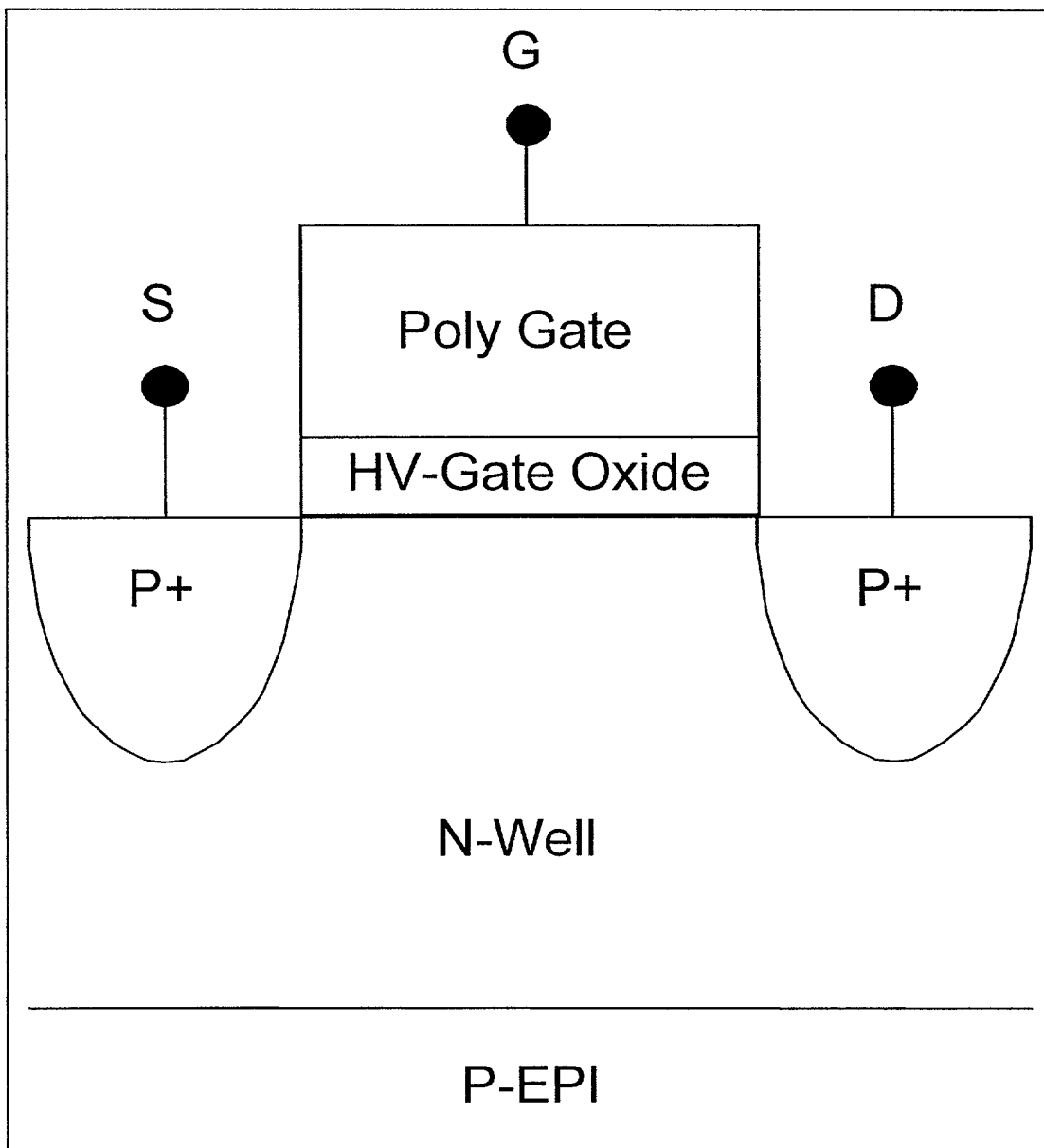


Figure 21a

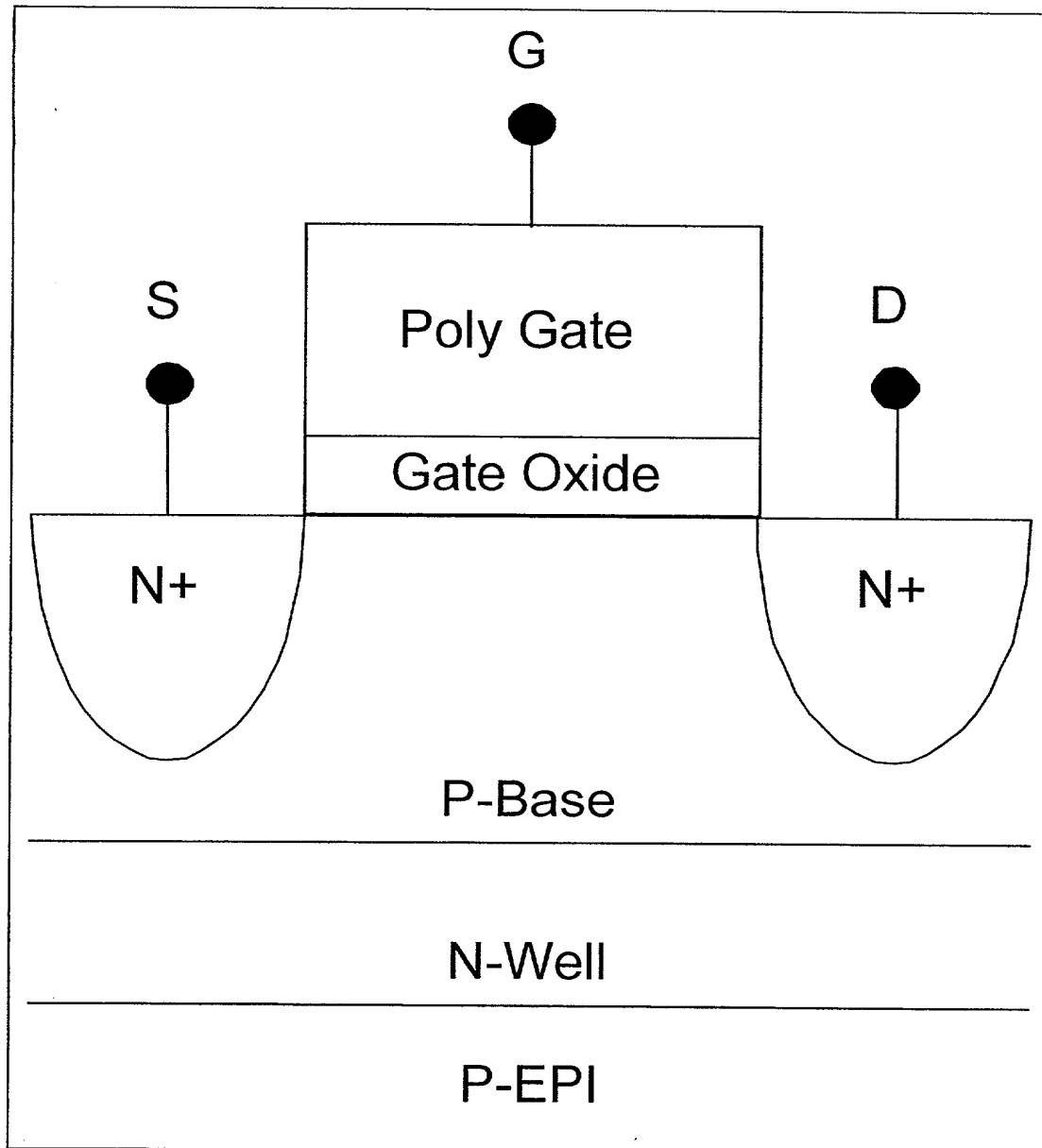


Figure 21b

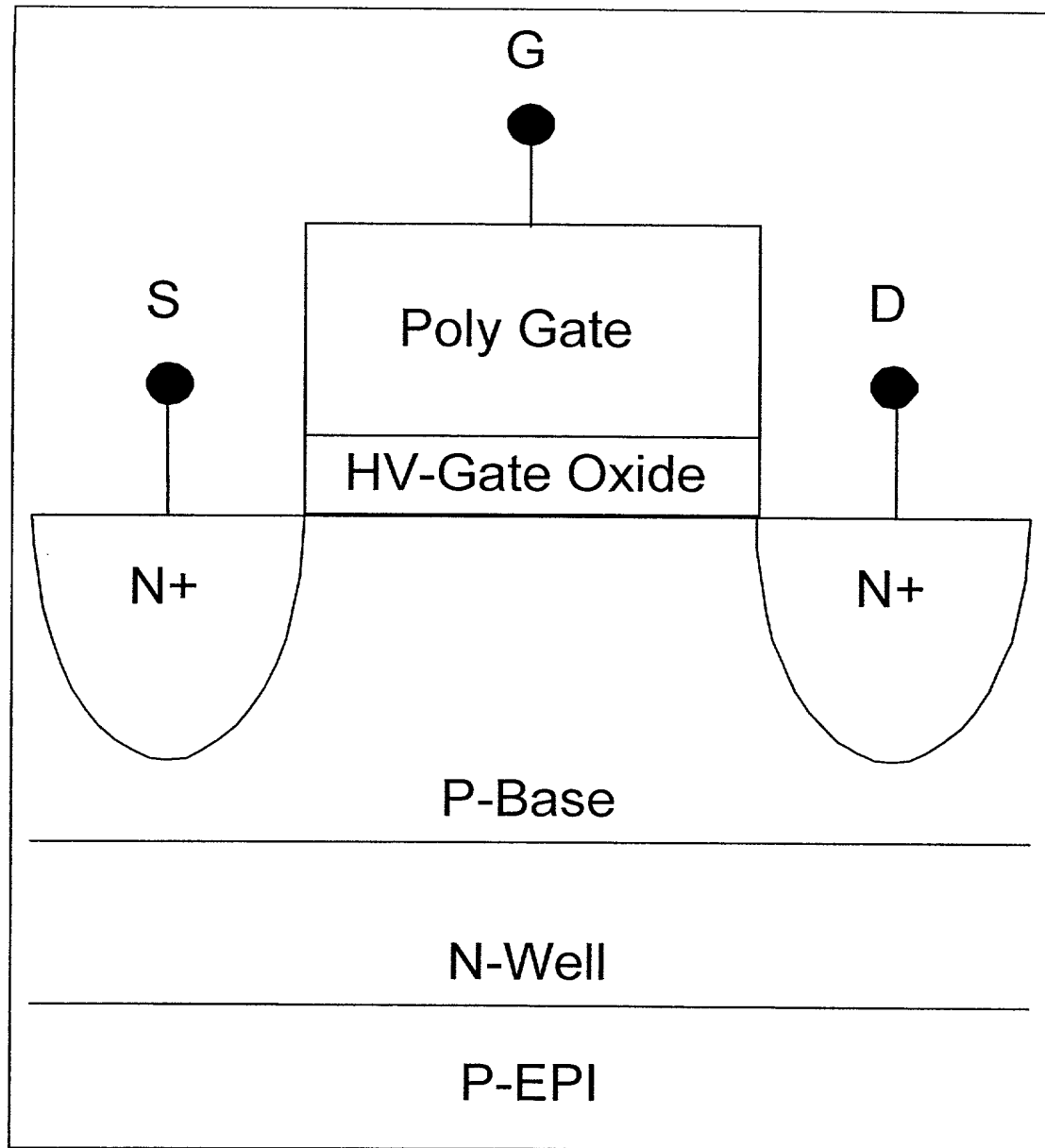




Figure 22a

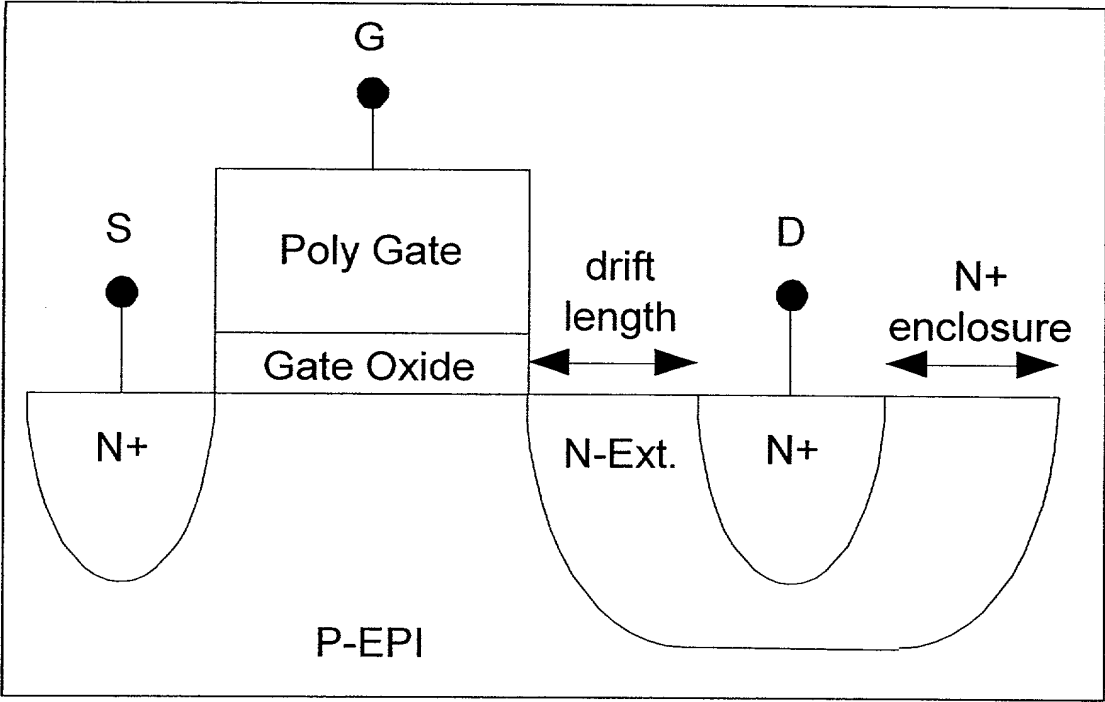


Figure 22b

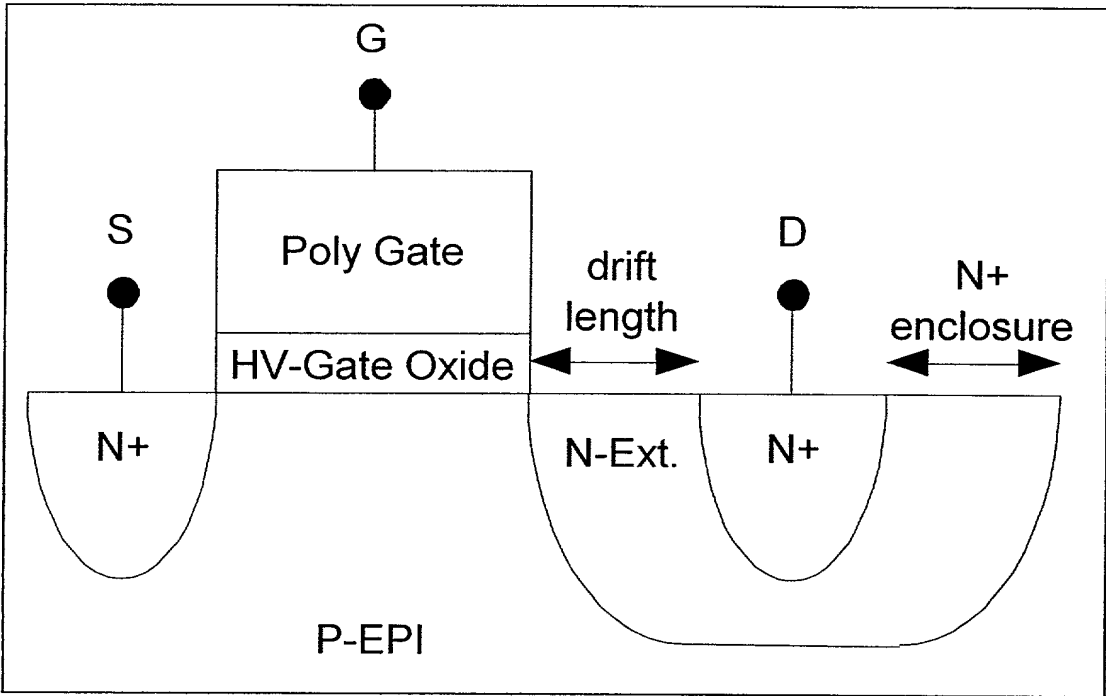


Figure 23a

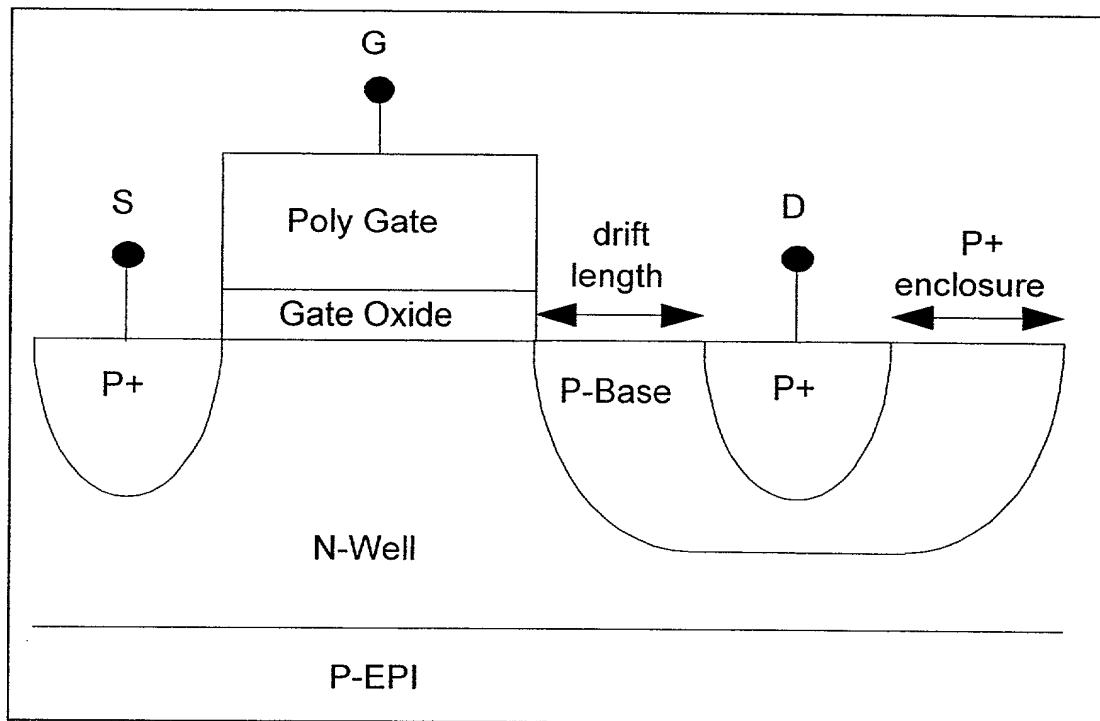


Figure 23b

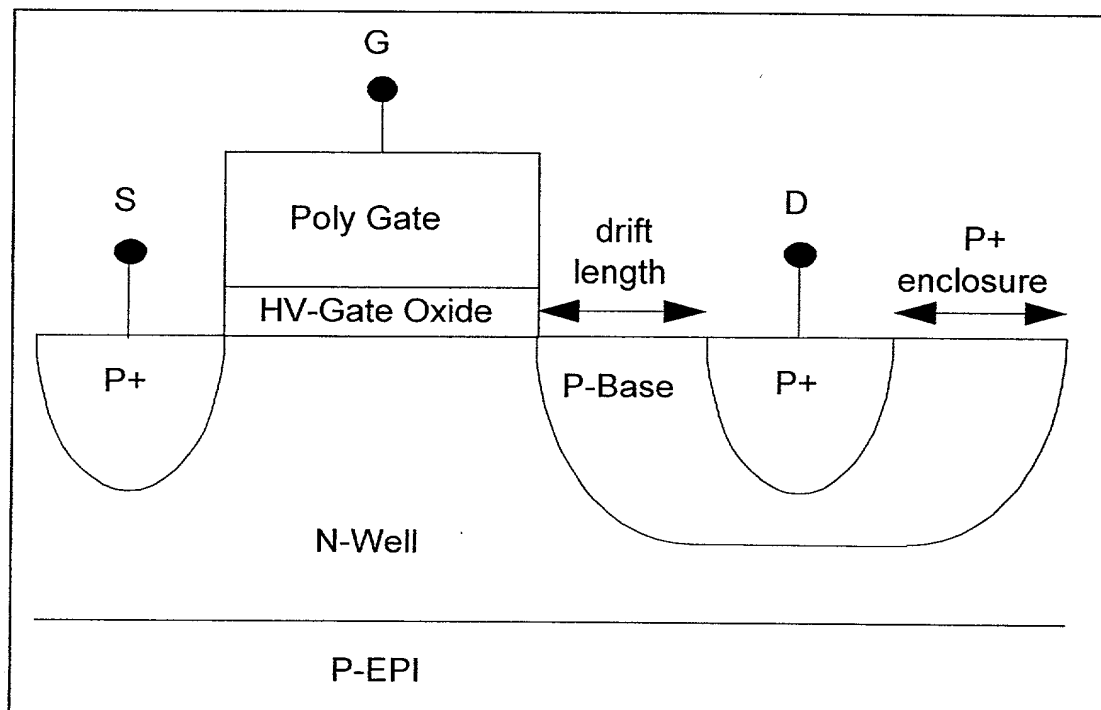


Figure 24a

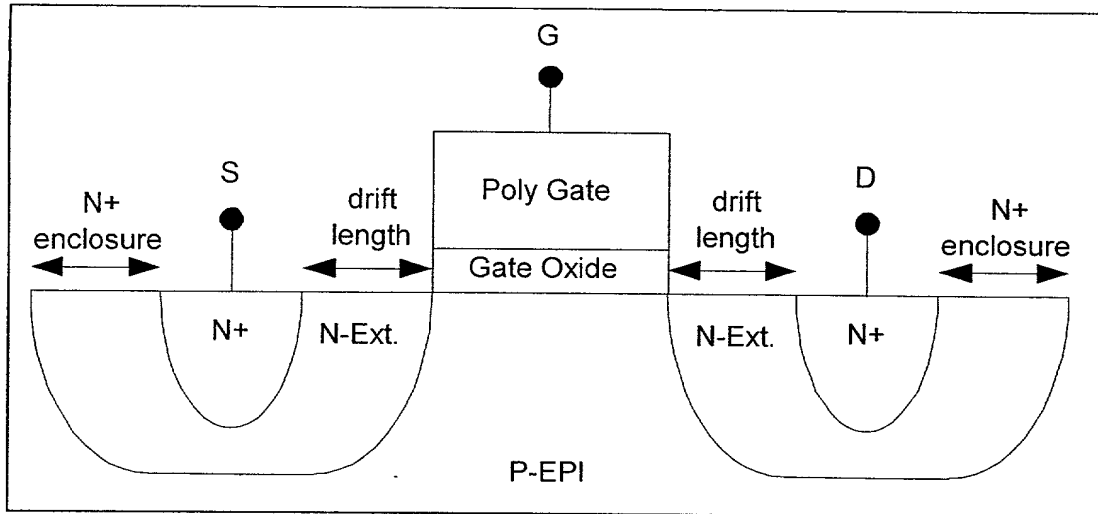


Figure 24b

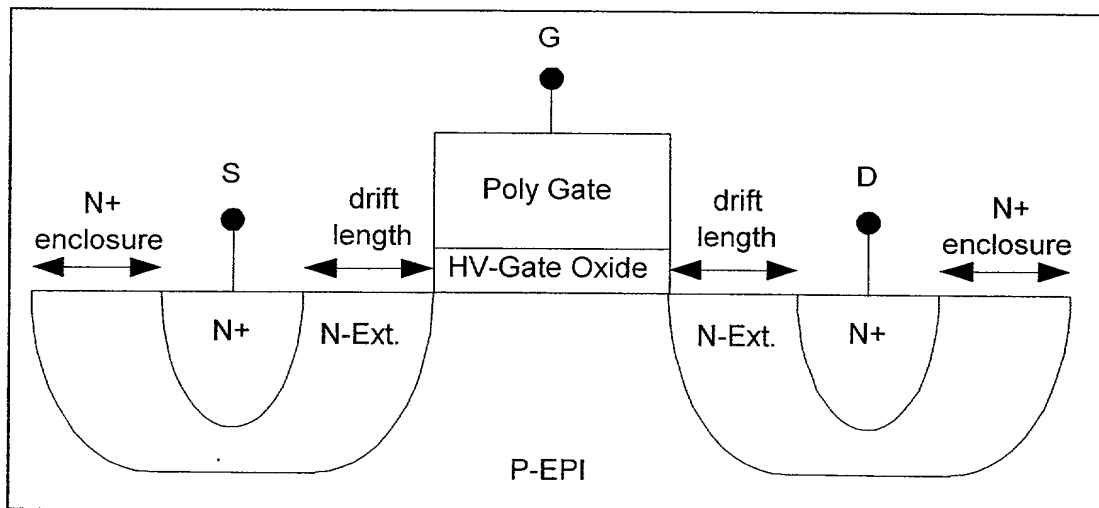


Figure 25a

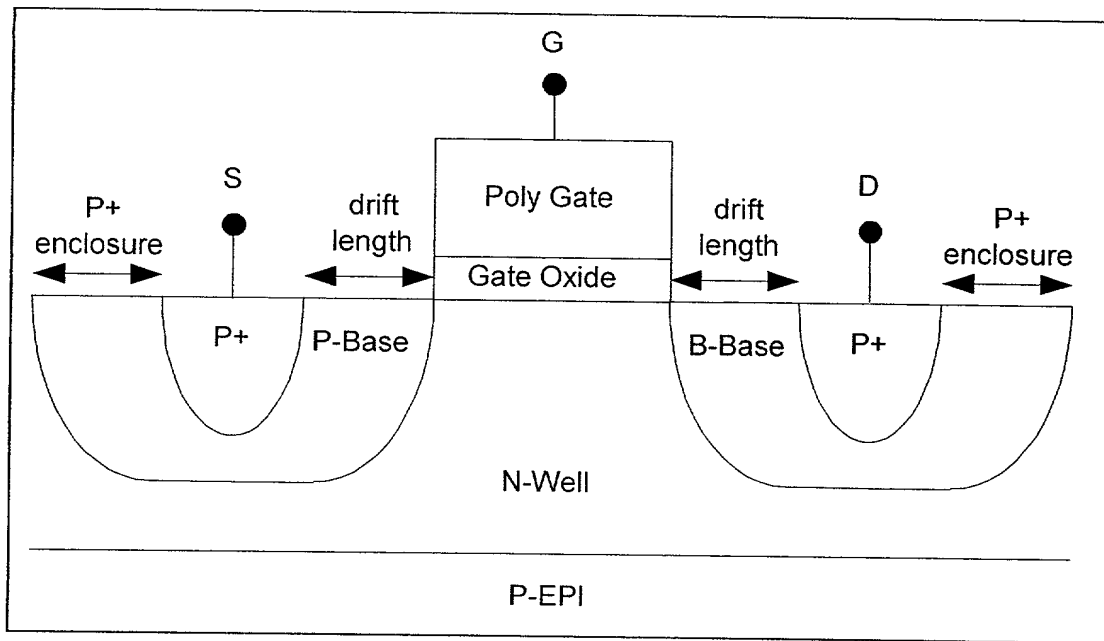


Figure 25b

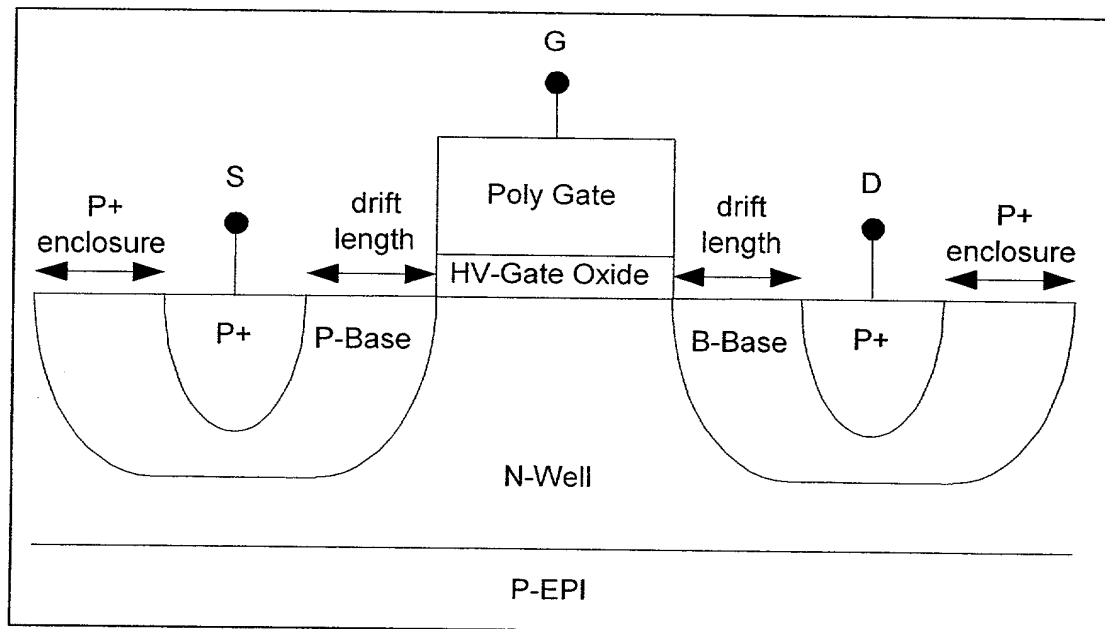


Figure 26a

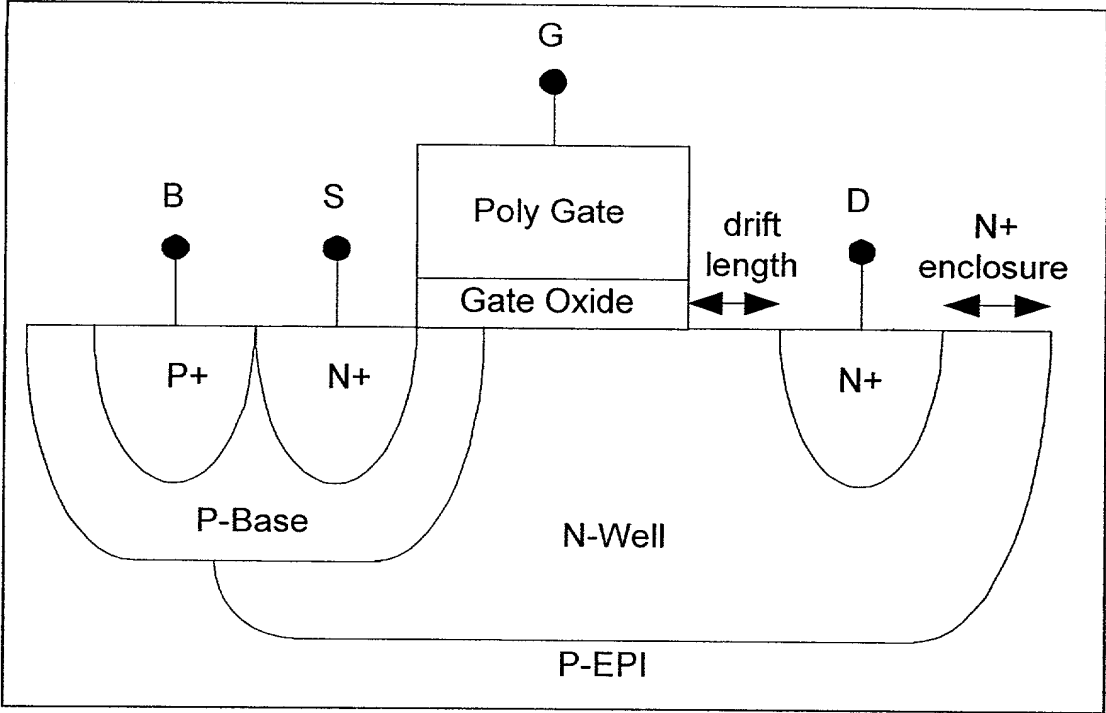


Figure 26b

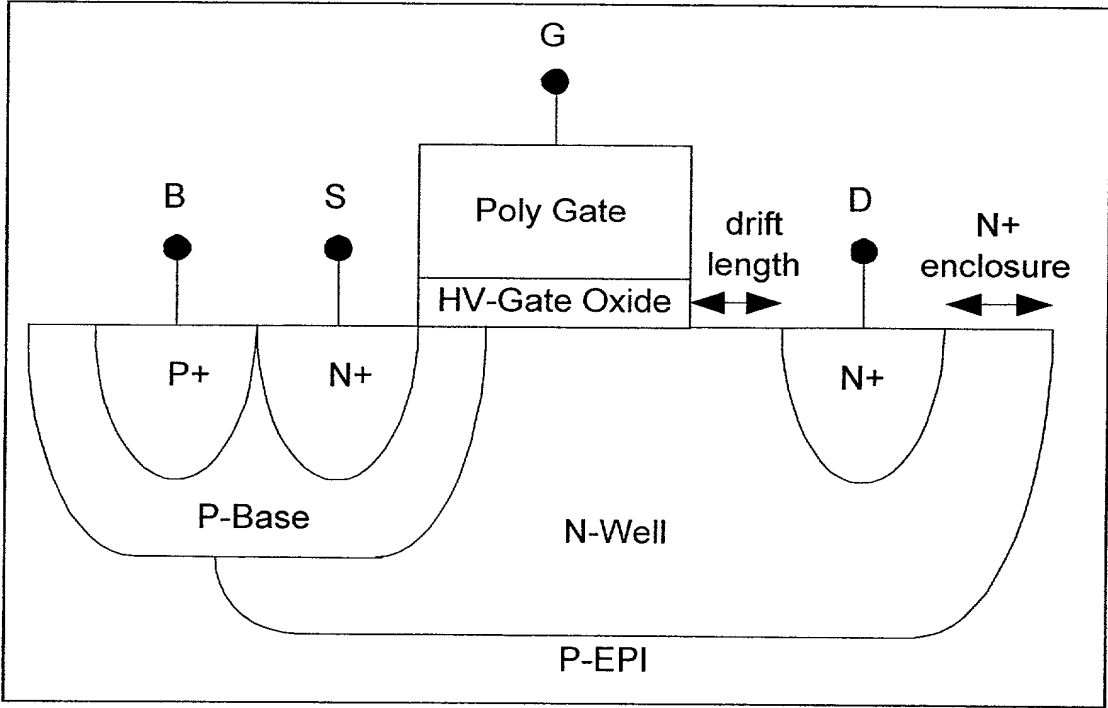


Figure 27a

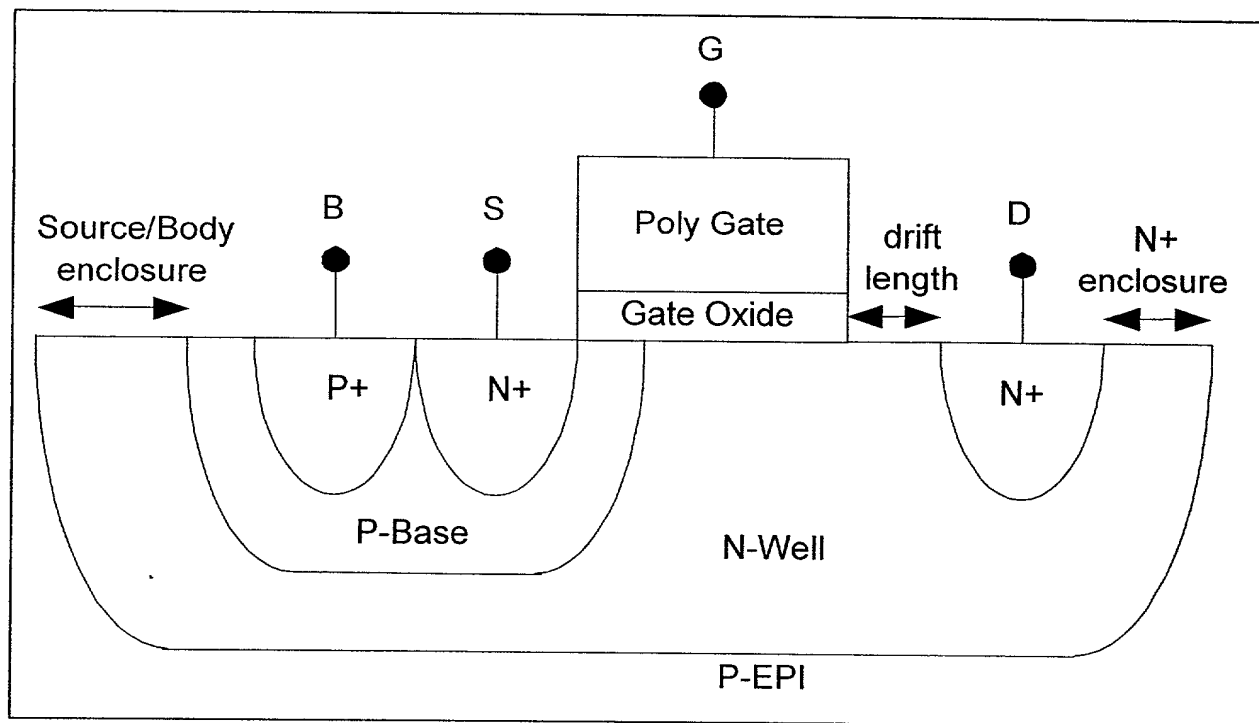


Figure 27b

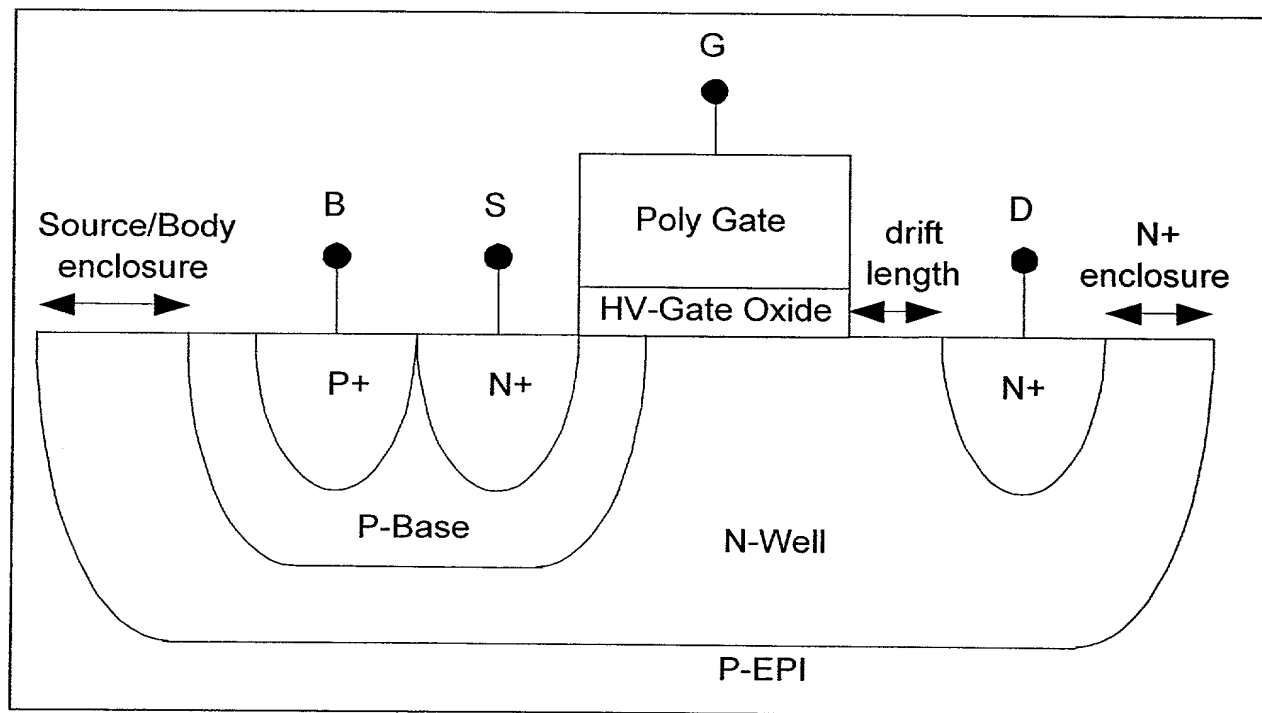


Figure 28a

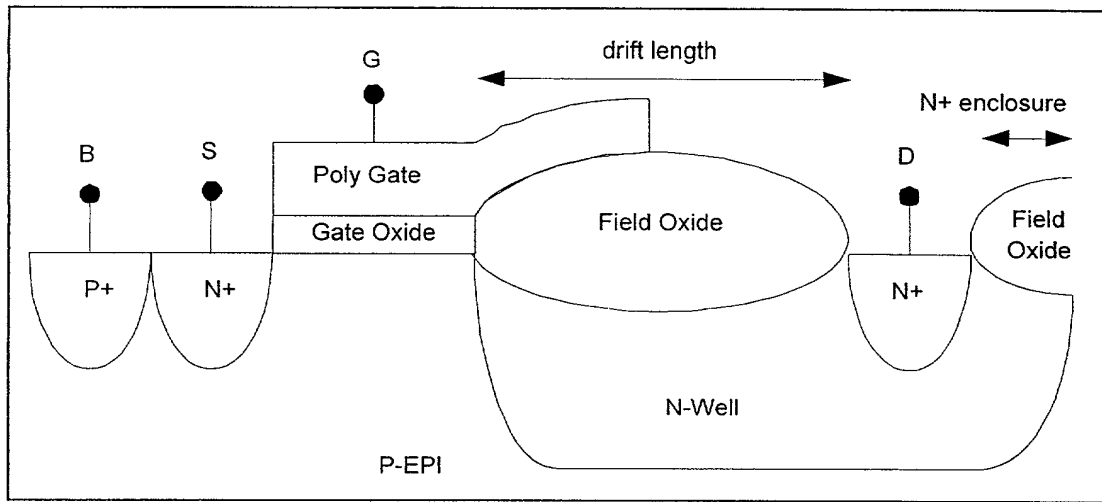


Figure 28b

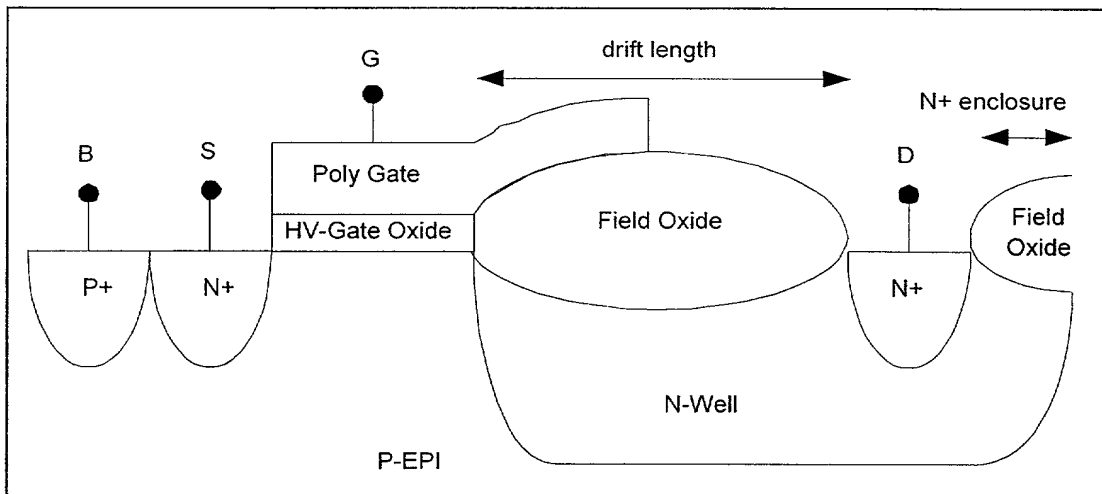


Figure 29a

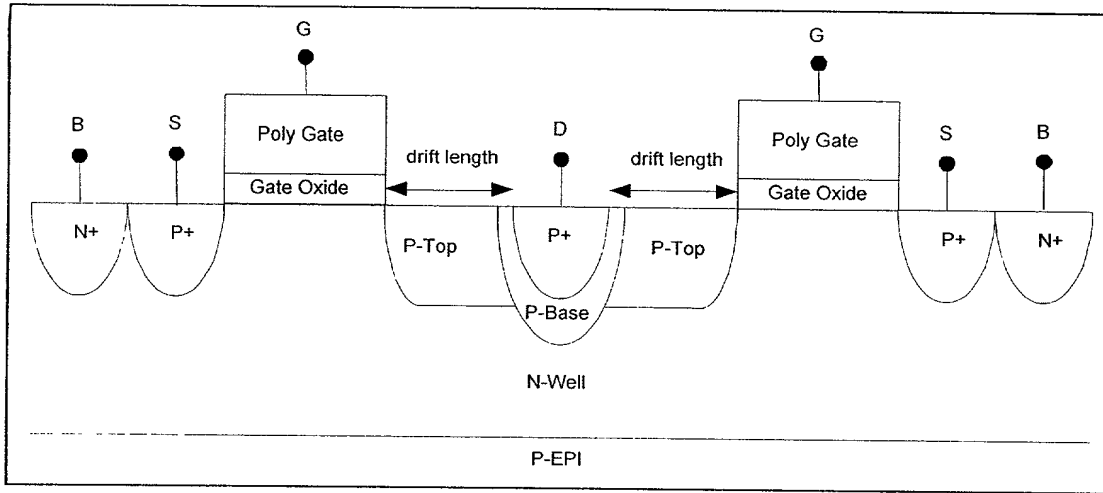


Figure 29b

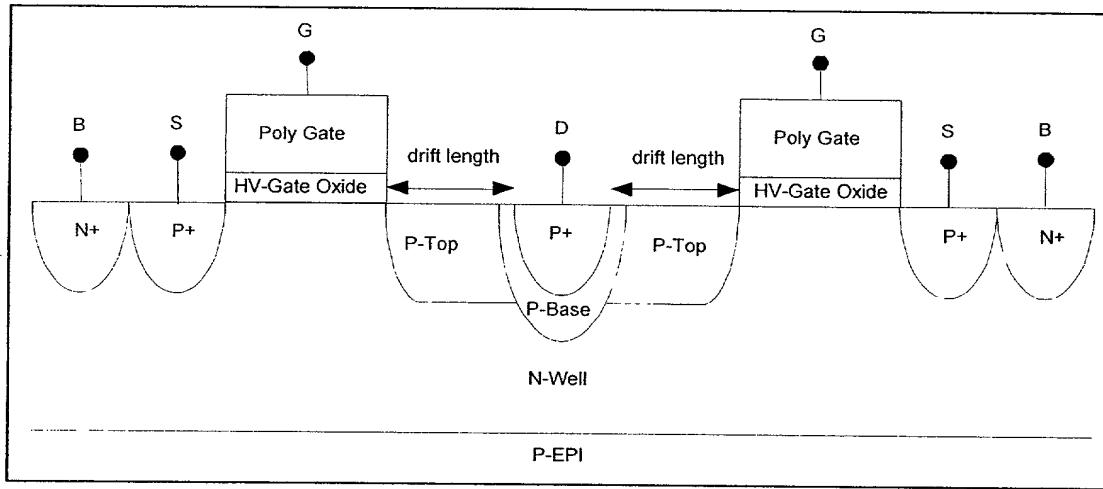




Figure 30a

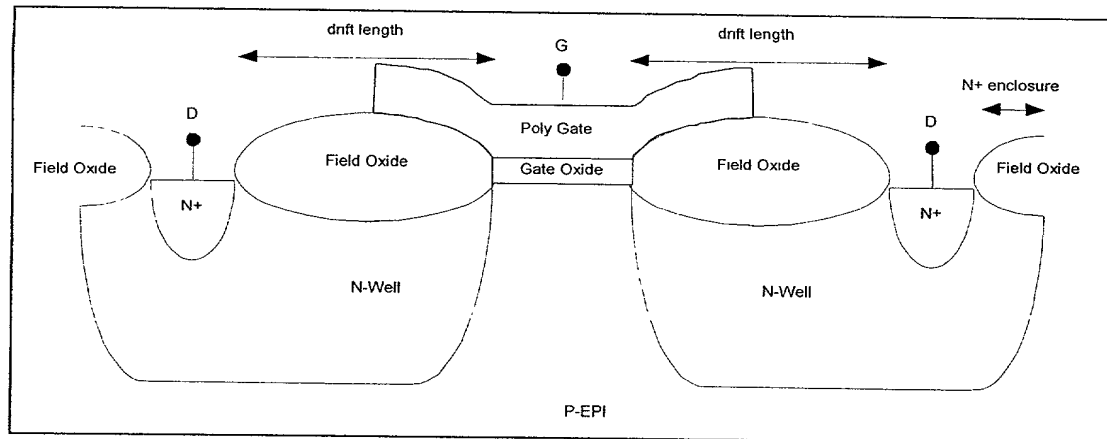


Figure 30b

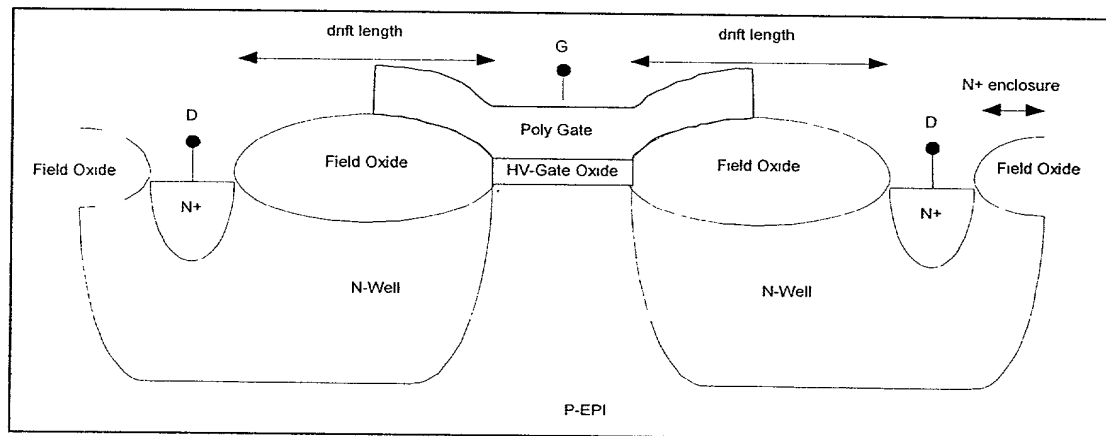


Figure 31a

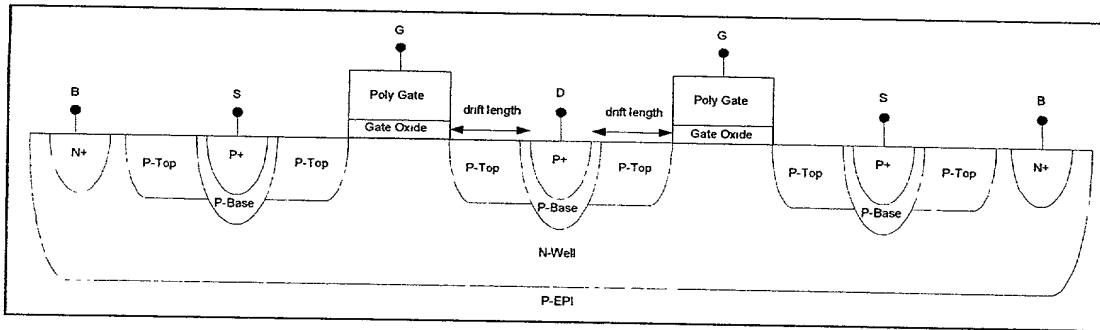


Figure 31b

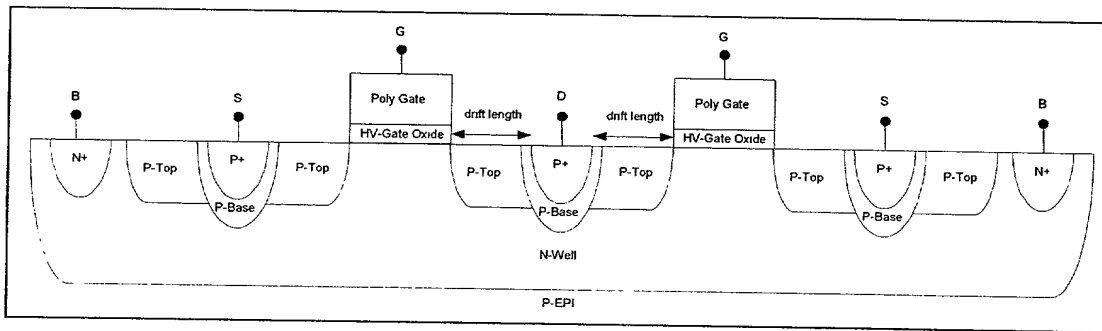


Figure 32a

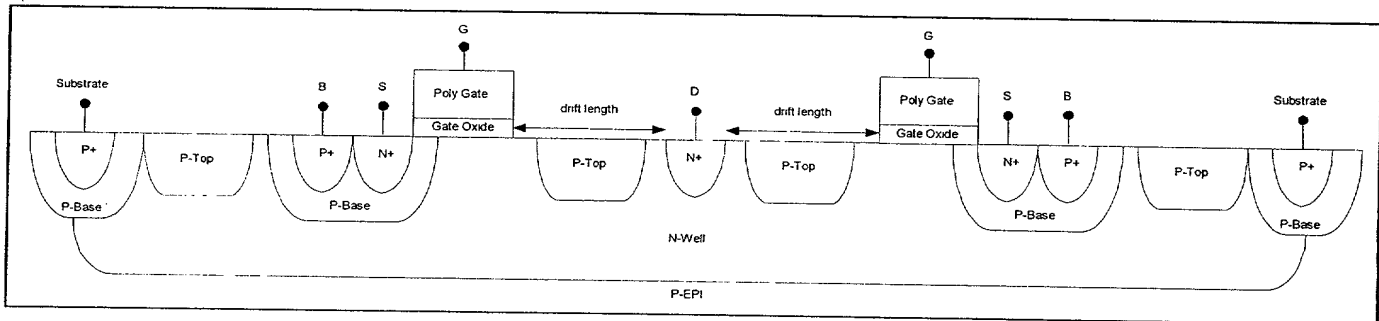


Figure 32b

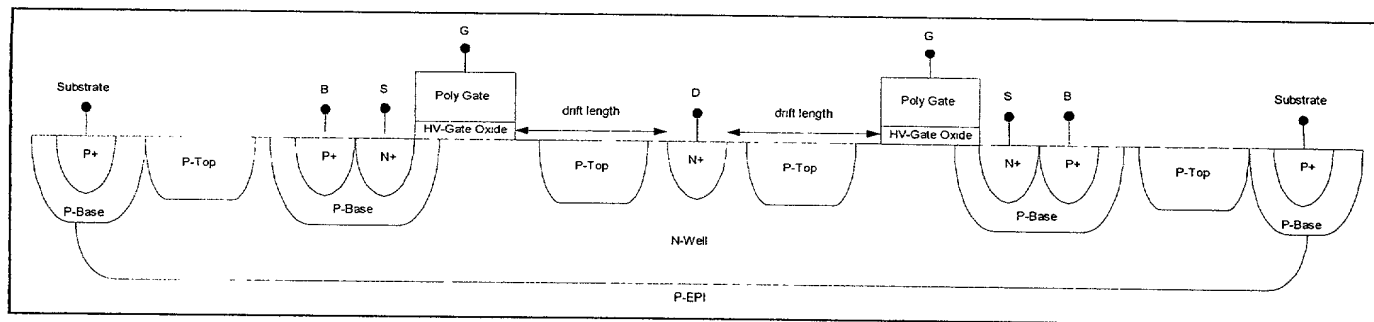


Figure 33a

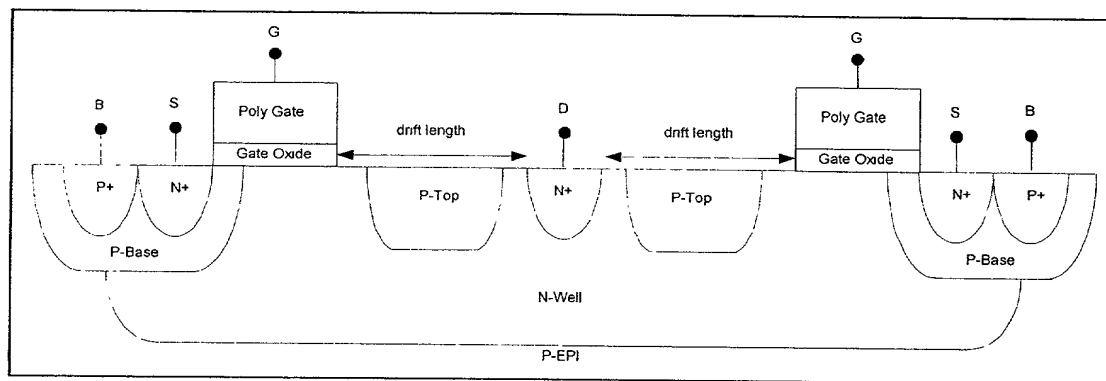
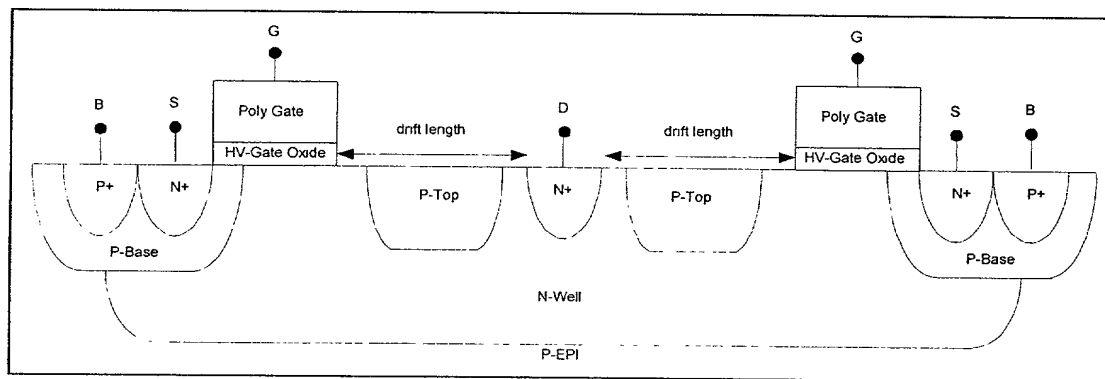


Figure 33b



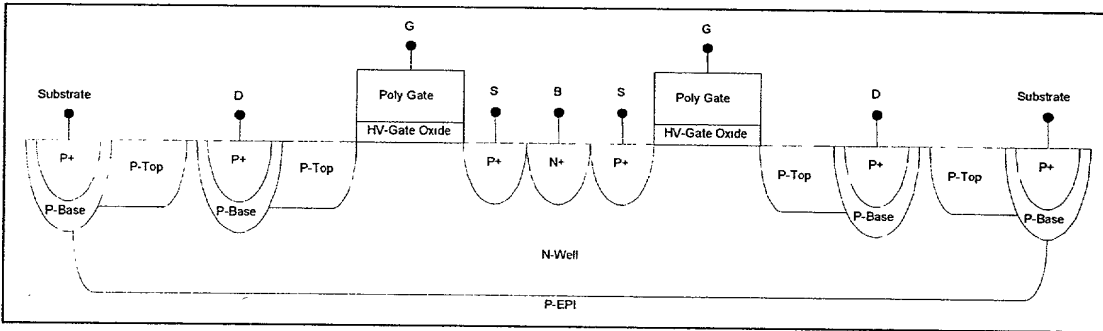
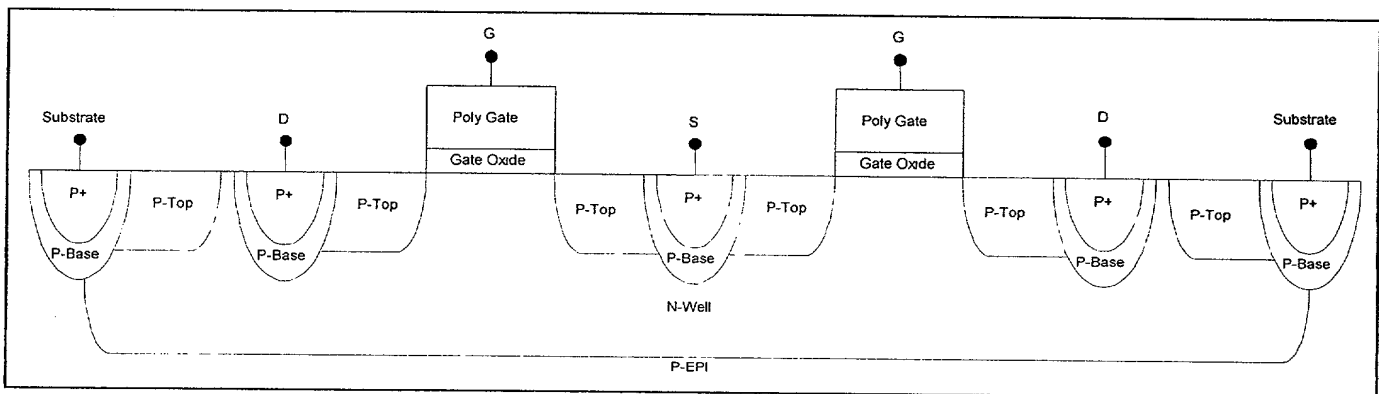
[illegible]

Figure 35a



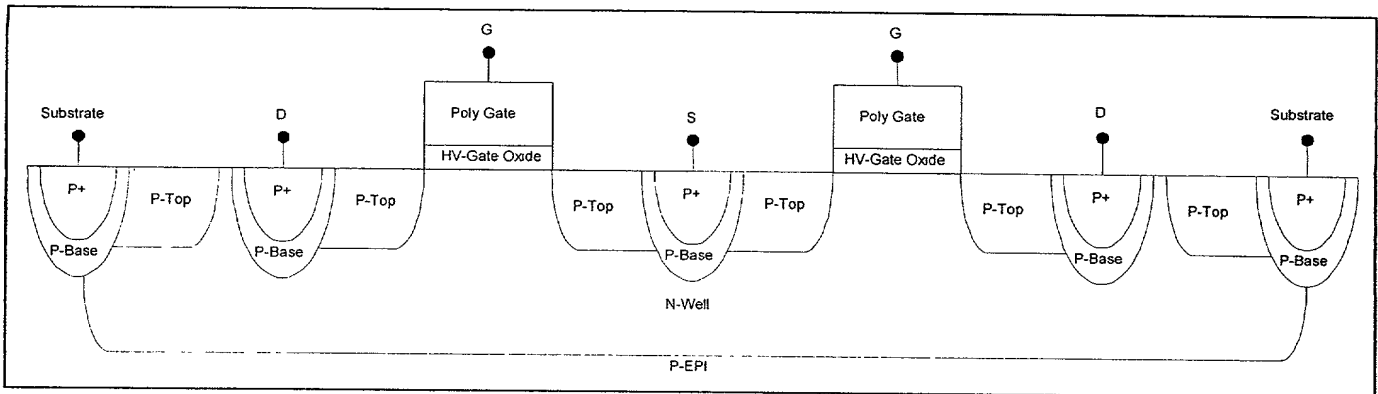
[illegible]

Figure 36

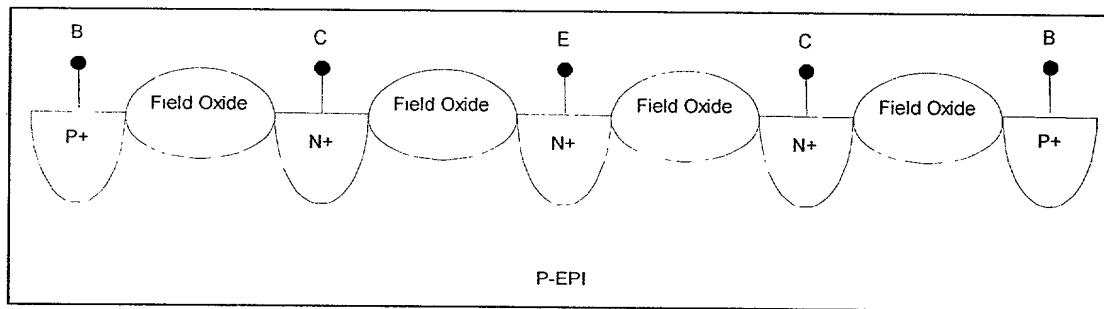
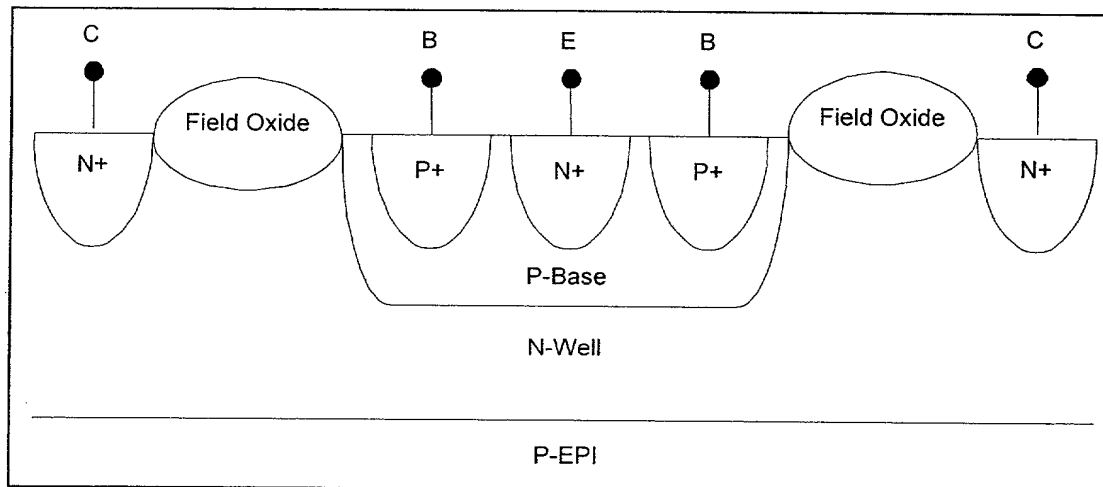


Figure 37



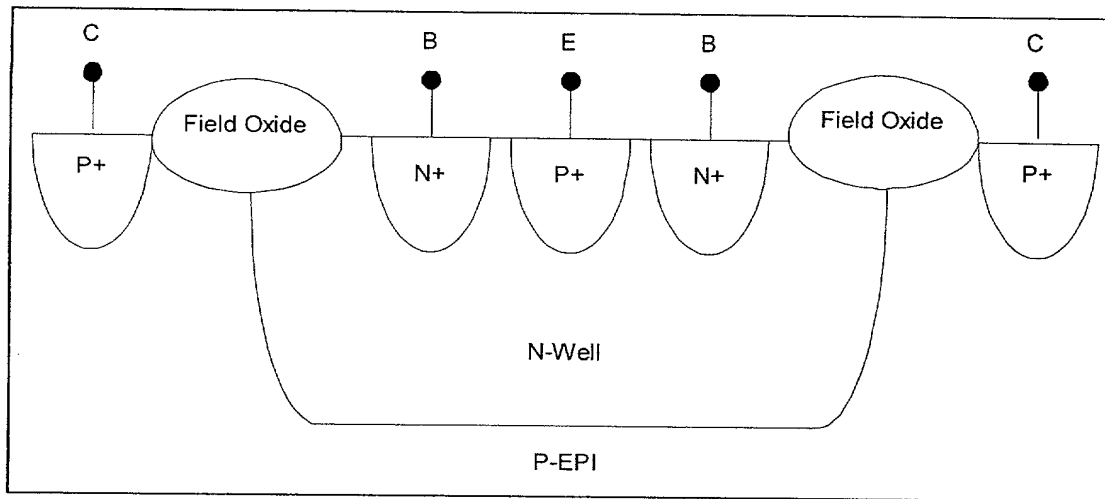
[illegible]

Figure 39

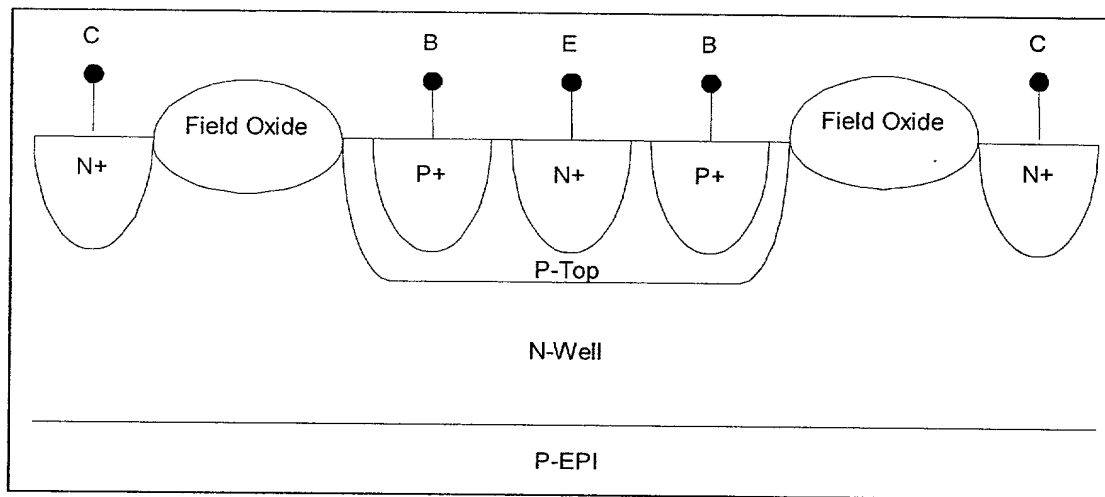


Figure 40

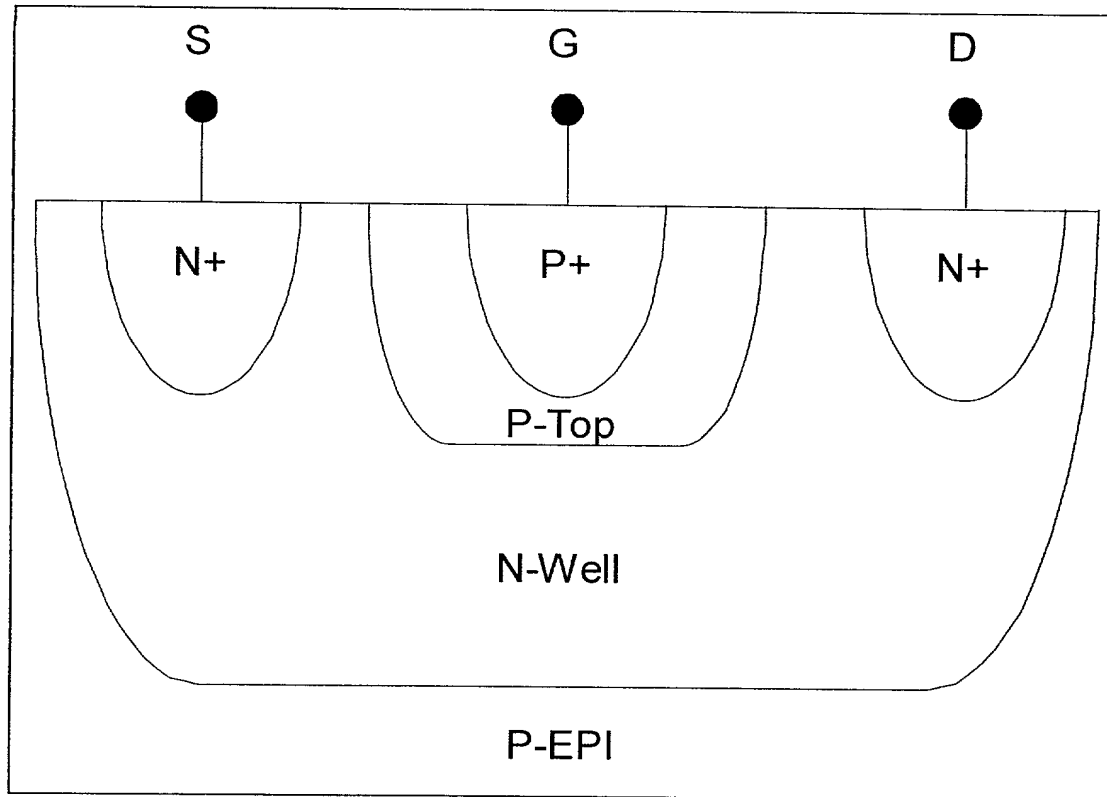
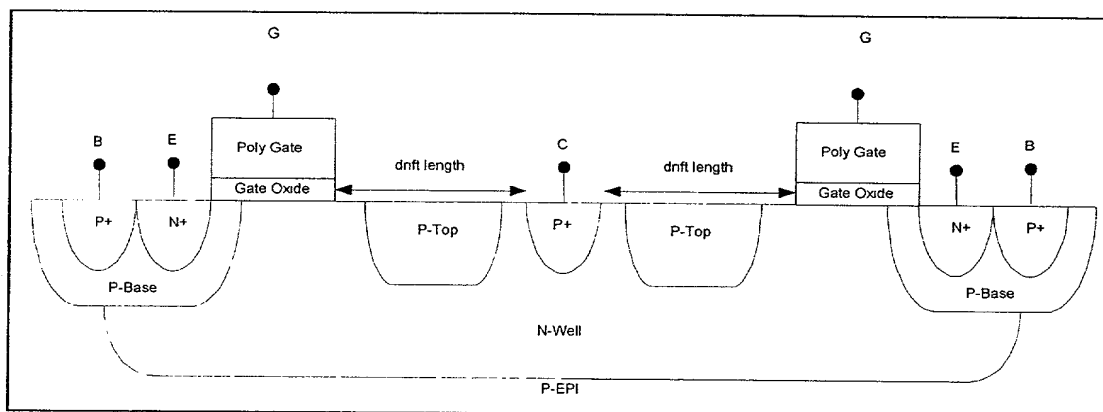


Figure 41a







Year	Age	Sex	Height (cm)	Weight (kg)	Body Mass Index (kg/m <sup>2</sup> )	Waist Circumference (cm)	Hip Circumference (cm)	Waist-Hip Ratio	Trunk Fat (%)	Visceral Fat (cm)	Subcutaneous Fat (cm)	Visceral Fat Index (cm <sup>3</sup> )	Subcutaneous Fat Index (cm <sup>3</sup> )	Visceral Fat to Subcutaneous Fat Ratio
1995	25	M	175	75	24.5	95	105	0.90	15	10	5	150	250	0.60
1995	25	F	165	65	23.8	85	95	0.89	12	8	4	120	200	0.60
1995	30	M	180	85	27.0	100	110	0.91	18	12	6	180	300	0.60
1995	30	F	170	75	25.9	90	100	0.90	16	10	5	160	280	0.57
1995	35	M	185	95	27.8	105	115	0.91	20	14	7	200	350	0.57
1995	35	F	175	85	27.9	95	105	0.90	18	12	6	180	300	0.60
1995	40	M	190	105	29.4	110	120	0.92	22	16	8	220	400	0.55
1995	40	F	180	95	29.2	100	110	0.91	20	14	7	200	350	0.57
1995	45	M	195	115	30.2	115	125	0.92	24	18	9	240	450	0.53
1995	45	F	185	105	31.9	105	115	0.91	22	16	8	220	400	0.55
1995	50	M	200	125	31.2	120	130	0.93	26	20	10	260	500	0.52
1995	50	F	190	115	32.1	110	120	0.92	24	18	9	240	450	0.53
1995	55	M	205	135	32.2	125	135	0.93	28	22	11	280	550	0.51
1995	55	F	195	125	32.3	115	125	0.92	26	20	10	260	500	0.52
1995	60	M	210	145	33.1	130	140	0.93	30	24	12	300	600	0.50
1995	60	F	200	135	33.8	120	130	0.92	28	22	11	280	550	0.51
1995	65	M	215	155	34.4	135	145	0.93	32	26	13	320	650	0.49
1995	65	F	205	145	35.1	125	135	0.93	30	24	12	300	600	0.50
1995	70	M	220	165	35.5	140	150	0.93	34	28	14	340	700	0.49
1995	70	F	210	155	35.7	130	140	0.93	32	26	13	320	650	0.49
1995	75	M	225	175	35.6	145	155	0.93	36	30	15	360	750	0.48
1995	75	F	215	165	36.3	135	145	0.93	34	28	14	340	700	0.49
1995	80	M	230	185	35.9	150	160	0.94	38	32	16	380	800	0.48
1995	80	F	220	175	36.6	140	150	0.93	36	30	15	360	750	0.48
1995	85	M	235	195	36.6	155	165	0.94	40	34	17	400	850	0.47
1995	85	F	225	185	37.3	145	155	0.93	38	32	16	380	800	0.48
1995	90	M	240	205	36.7	160	170	0.94	42	36	18	420	900	0.47
1995	90	F	230	195	37.8	150	160	0.94	40	34	17	400	850	0.47
1995	95	M	245	215	37.5	165	175	0.94	44	38	19	440	950	0.46
1995	95	F	235	205	38.7	155	165	0.94	42	36	18	420	900	0.47
1995	100	M	250	225	37.0	170	180	0.94	46	40	20	460	1000	0.46
1995	100	F	240	215	38.5	160	170	0.94	44	38	19	440	950	0.46
19														

Active Component	Maximum Gate Voltage (V)	Maximum Drain Voltage (V)
The standard N-MOSFET of <b>Figure 19a</b>	15	5.5
The standard N-MOSFET of <b>Figure 19b</b>	40	5.5
The standard P-MOSFET of <b>Figure 20a</b>	15	5.5
The standard P-MOSFET of <b>Figure 20b</b>	40	5.5
The standard Junction isolated N-MOSFET of <b>Figure 21a</b>	15	5.5
The standard Junction isolated N-MOSFET of <b>Figure 21b</b>	40	5.5
The mid-voltage single extended N-MOSFET of <b>Figure 22a</b>	15	40
The mid-voltage single extended N-MOSFET of <b>Figure 22b</b>	40	40
The mid-voltage single extended P-MOSFET of <b>Figure 23a</b>	15	40
The mid-voltage single extended P-MOSFET of <b>Figure 23b</b>	40	40
The mid-voltage double extended N-MOSFET of <b>Figure 24a</b>	15	40
The mid-voltage double extended N-MOSFET of <b>Figure 24b</b>	40	40
The mid-voltage double extended P-MOSFET of <b>Figure 25a</b>	15	40
The mid-voltage double extended P-MOSFET of <b>Figure 25b</b>	40	40
The mid-voltage single extended N-LDMOSFET of <b>Figure 26a</b>	15	75
The mid-voltage single extended N-LDMOSFET of <b>Figure 26b</b>	40	75
The mid-voltage floating source N-LDMOSFET of <b>Figure 27a</b>	15	75
The mid-voltage floating source N-LDMOSFET of <b>Figure 27b</b>	40	75
The high-voltage single extended N-MOSFET of <b>Figure 28a</b>	15	
The high-voltage single extended N-MOSFET of <b>Figure 28b</b>	40	
The high-voltage single extended P-MOSFET of <b>Figure 29a</b>	15	
The high-voltage single extended P-MOSFET of <b>Figure 29b</b>	40	
The high-voltage double extended N-MOSFET of <b>Figure 30a</b>	15	
The high-voltage double extended N-MOSFET of <b>Figure 30b</b>	40	
The high-voltage double extended P-MOSFET of <b>Figure 31a</b>	15	
The high-voltage double extended P-MOSFET of <b>Figure 31b</b>	40	
The high-voltage double extended N-LDMOSFET of <b>Figure 32a</b>	15	
The high-voltage double extended N-LDMOSFET of <b>Figure 32b</b>	40	
The very-high-voltage single extended N-LDMOSFET of <b>Figure 33a</b>	15	
The very-high-voltage single extended N-LDMOSFET of <b>Figure 33b</b>	40	
The very-high-voltage single extended P-MOSFET of <b>Figure 34a</b>	15	
The very-high-voltage single extended P-MOSFET of <b>Figure 34b</b>	40	
The very-high-voltage double extended P-MOSFET of <b>Figure 35a</b>	15	

The very-high-voltage double extended P-MOSFET of <b>Figure 35b</b>	40	
<b>325</b>		
The lateral NPN bipolar transistor of <b>Figure 36</b>	-	15
The high-voltage vertical NPN bipolar transistor of <b>Figure 37</b>	-	40
The high-voltage vertical PNP bipolar transistor of <b>Figure 38</b>	-	55
The very-high-gain vertical NPN bipolar transistor of <b>Figure 39</b>	-	
<b>3.3</b>		
The high-voltage N-JFET of <b>Figure 40</b>	600	600
The very high-voltage LIGBT of <b>Figure 41a</b>	15	600
The very high-voltage LIGBT of <b>Figure 41b</b>	40	600

TOP SECRET

# Figure 43

Junction	Typical Sheet Resistance	Typical Breakdown Voltage
P+ / N-Well	65 Ohms/sq.	20 Volts
N+ / P-Substrate	50 Ohms/sq.	25 Volts
P-Top / N-Well	14 kOhms/sq.	40 Volts
P-Base / N-well	1.75 kOhms/sq.	45 Volts
N-Ext. / P-Substrate	4 kOhms/sq.	45 Volts
N-Well / P-Substrate	1.5 kOhms/sq.	150 Volts
N-Well / P-Top / P-Substrate (RESURF)	-	650 Volts

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